ANALYTICAL STUDY OF THE POSTGRADUATE THESES ON SCIENCE AND TECHNOLOGY IN AHMADU BELLO UNIVERSITY 1967-1992

BY

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DECLARATION

I hereby declare that this thesis for the degree of master of Library and Information Science has been written by me and it is a record of my own research work. It has not been previously presented either wholly or partly for any degree and is not been concurrently submitted for any other degree. All quotations are indicated and the sources of information are accordingly acknowledged by means of references.

SHAIBU B. ADUKU
(DECEMBER, 1997)

CERTIFICATION

This Thesis entitled "Analytical Study of the Postgraduate Theses on Science and Technology in Ahmadu Bello University 1967 - 1992" by Shaibu Baba Aduku meets the regulation governing the award of the degree of master of Library and Information Science of Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is dedicated to my late sister Rabi Baba Aduku, my late brother Jibrin Baba Aduku, my sons Mohd Jemilu and Moh'd Mustapha, my aged parents Alhaji Ahmodu Mohammed Aduku and Mallama Zainabu Baba Aduku.

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ABSTRACT

Investigates the pattern of theses productivity and distribution in the fifty academic departments of the six faculties offering natural and applied science courses in Ahmadu Bello University from 1967 to 1992 and to identify the factors responsible for their varied productivity.

The documentary research method was employed in gathering the bibliographic information on the 1,031 theses. Bradford's Law of Scatter was used to determine the core departments in the output of theses. Moving averages, graphical representations, tables and percentages were used to determine the pattern of growth and distribution of theses. The questionnaire and interview methods were also used for data collection.

Six departments found to be most productive constitute the core departments in the output of the theses. The quality and handwork of the postgraduate students and the availability of academic staff with requisite qualifications to handle postgraduate programmes contributed to the high output of the theses. Non-availability/inadequacy of relevant library materials to support the postgraduate students in writing their theses, inadequate funding of postgraduate programmes and lack of equipment and chemicals in laboratories and workshops were the major factors that contributed o the low output of theses in some departments.

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DEFINITION OF TERMS

To enhance a better understanding of the terms used in this study an operational definition of these terms has been provided below.

i. Theses: Original contribution to knowledge by candidates for higher degree awards in Universities. It is used in this study to include dissertations.

ii. Bibliographic Control: The coverage of all the Ahmadu Bello Postgraduate Theses on natural and applied sciences produced in the fifty teaching departments and the six faculties that are science and technology based from 1967 to 1992.

iii. Natural Science: Organised knowledge of natural phenomena and of relations between them. It is used in this study to mean the departments in the faculty of science in Ahmadu Bello University.

iv. Applied Science: The selective adaptation of one or more processes and materials identified by science in devices designed to serve the need of man. It is used in this study to mean the teaching departments in the following faculties of Ahmadu Bello University (Agriculture, Engineering, Medicine, Pharmaceutical Sciences and Veterinary Medicine). This term is also used interchangeably with technology.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The development of university education is a relatively new phenomenon in Nigeria. Ojo (1983: 26) stated that the tradition had been for Nigerians to go overseas especially to Sierra leone, (Fourah Bay college) the united kingdom and the United States for higher education.

To meet the demands for higher education by the people in the British colonies in general and West Africa in particular, the British government set up two commissions in 1943. The first Commission under the chairmanship of Lord Justice Asquith looked at the problems of higher education in the colonies. The second commission was under Rt. Hon Walter Elliot and .investigated the need for higher education in British West Africa and made recommendations on how such need could best be met.

The reports of the two commissions were published in 1945 and became the blue print for the development of university education in British colonies in general and West Africa in particular. The Asquith Commission which was concerned mainly with the form of the proposed universities in the colonies and the principles that should guide them recommended the establishment of university colleges with special relationship

with the university of London. A University college was defined by the commission as "an institution of higher learning at university level which is not empowered to grant degrees". The Elliot Commission on the other hand recommended the establishment of three university colleges in West Africa, one of them to be located in Nigeria.

In accordance with the recommendations of the Elliot and Asquith commissions, the foundation of university education in Nigeria was laid in February 1948 when 104 students of the prestigious Government Higher college, Yaba, moved to Ibadan to form the nucleus of the University college, Ibadan. The college, being an affiliate of the University of London, prepared its students for the London degrees between 1948 and 1962. Before the end of the fifties, the inadequacy of the university college as the one and only fountain of university education in Nigeria was generally acknowledged. Okafor (1971:04) observed that many Nigerians became quite critical of the college because it was alleged that it admitted too few students, and its orientation was British rather than Nigerian, and that its general pace of development was too slow for a Nigeria regardly moving towards political sovereignty.

With the above background, a commission under the chairmanship of Sir Eric Ashby was appointed in April 1959 by the Federal Government to survey Nigeria's needs in the field of post school certificate and Higher education over a period

of twenty years, 1960 - 1980. The report of the commission popularly known as the "Ashby report" was submitted in 1960 and the Government white paper on it provided the guidelines for the establishment and development of universities in Nigeria in the 1960s. The commission recommended, among other things, the establishment of three new universities in addition to the University of Ibadan, and the University of Nigeria, Nsukka, the second oldest university in Nigeria which was founded in 1960 by the eastern Nigerian Government. The new universities were to be cited in Enugu, Lagos and Zaria respectively. Ojo (1983) stated that the one for Enugu was expected to grow out of the Enugu Campus of the Nigerian college of Arts, Science, and Technology (NCAST) and was to be independent of the university of Nigeria, Nsukka. The university proposed for Zaria, he further stated, should grow out of the Zaria Campus of NCAST and th[illegible]e Ibadan Campus of the Nigerian College of Arts, Science, and Technology (NCAST) should be merged with that Univers[illegible]ge, I[illegible]

However, the Western Regional Government which expected that the Ibadan campus of the Nigerian Co[illegible] of Arts Science, and Technology would be upg[illegible] full fledged university did not agree with the recommendation that only three universities should be established. Egbule (1977:20) pointed [illegible] acting on its mandates, the Ashby commission did not recommend the establishment of the University of Ife. But the Federal Government proceeded with its design to

establish its own university". The Federal Government, he concluded, succumbed to the pre-emptory action of the Western Regional Government and released to them the site and assets of the Ibadan Branch of the Nigerian college of Arts, Science, and Technology which would have been inherited by the university of Ibadan.

The Ahmadu Bello University, Zaria and the universities of Lagos and Ife were established in 1962. The first two were established as recommended by the Ashby commission and the last by the Western Nigerian Government. Nigeria's sixth oldest University (Benin) was established in 1972 having been started as an Institute of Technology in 1970 by the Mid-Western Nigeria Government. Four new universities and three university colleges were established in September 1976 by the Federal Government. By October 1977 the three university colleges had become full-fledged universities thereby increasing the number of Nigeria's universities to thirteen. By August 1992 there were thirty-two universities in Nigeria. Presently, Nigeria is expecting an increase in the number of universities as a result of the demands and efforts made by some states at opening more state-owned universities.

The Government of the Northern Region of Nigeria, having got the consent of the Federal Government, invited the "Inter-University Council for Higher Education" through the Secretary of State for Commonwealth Relations. The Council was empowered to tender advice on the scope of the proposed university, the

adaptation of the existing institutions together with their curricular which would be absorbed into the new university and the modification of legislation affecting them. The existing institutions were the Zaria Branch of the Nigerian college of Arts, science, and Technology, the Institute of Administration at Zaria, the Agricultural Research Institute at Vom, and the Ahmadu Bello College at Kano later known as Abdullahi Bayero College now Bayero University, Kano. A brief account of these institutions, their work and future plans columinated in the birth of the University of Northern Nigeria. The Bill establishing this university with the name "Ahmadu Bello University" was introduced by the Premier (Alhaji the Hon. Sir Ahmadu Bello, K.B.E, Sardauna of Sokoto), and passed into law on June 20th 1962.The University of Northern Nigeria was renamed Ahmadu Bello University after the first premier of the then Northern Region and was opened on the 4th of October, 1962. Like other Universities, it will be concerned with problems that engage world-wide intellectual efforts and the important tasks of preserving and developing the special cultural traditions of the community in which they are situated.

Since its inception, the Ahmadu Bello University has grown both in its scope and activities. For example, the university had four faculties, fifteen departments, and four hundred and twenty six students on the 4th of October 1962 when it was opened. Presently, the university has a

postgraduate school, five institutes, six specialized centres, a school of General and Remedial Studies, a primary school as well as a demonstration Secondary school.

Abdullahi (1991:4) observed that the university has eleven faculties of which six have multi-degree programmes namely, Arts and Social Sciences; Education, Engineering, Environmental design, Law, and Sciences; while the other five faculties have single degree programmes namely, Administration, Agriculture, Medicine, Pharmaceutical Sciences and Veterinary Medicine. All these faculties, she further stated, are well matched to the characteristics of the University with its international distinction in so many different fields: the physical sciences; Engineering, life sciences, and medicine, the humanities, law, Business Administration, Fine Arts, Environmental Sciences, Education and vocational training, Agricultural mechanization and Home Economics etc. The University, she concluded, has grown from its 15 departments in 1962 to 80 departments in just thirty-two years and that each department has achieved substantial distinction by its contribution to the needs of the society and to conventional scholarship.

The university is the biggest in Nigeria with the highest number of students admission. "It had a population of almost 25,000 (twenty five thousand) students as at the 1990/1991 academic session. The university also has the largest library building in terms of physical structure not only in Nigeria

but in African South of the Sahara and north of the Kalahari". Kashim Ibrahim Library, the main library of the university started in 1955 when the Nigerian College of Arts Science and technology, Zaria, was established. That time, the collection was housed in one small room in what was then called teaching Bloc 'A' before it was transferred to the current School of General and Remedial Studies (SGRS) library which was actually occupied in August 1962. The permanent library complex was formaly declared open by Shettima Kashim Ibrahim, the former Governor of the former Northern Nigeria on the 10th of December 1976. The library has a total area of 139,790 square feet and is capable of housing 500,000 (five thousand) volumes of books and can seat about 2,000 (two thousand readers).

The Postgraduate School of Ahmadu Bello University, Zaria, was established in October 1980 as an integral and important unit of the university designed to help in achieving an integrated and multidisciplinary response to providing qualified manpower for national development in relation to the needs of the Federal and state Governments, public Corporations industries and the private sector. In the 1982/83 session the Dean's annual report of the postgraduate school stated that the School is expected to play a leading role in helping the various departments improve training programmes to provide qualified manpower for the university, other universities and institutions of Higher learning in Nigeria. The postgraduate school is also involved in identifying,

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planning and implementing postgraduate programmes of the university.

1.2 CONCEPTUAL FRAMEWORK

Theses are important sources of knowledge produced by postgraduate students as their contributions to the research activities of their chosen disciplines and also as part of the requirements for the award of higher degrees in the universities. Doctoral dissertations, according to Malinowsky,(1976:134) are usually considered a primary form of scientific investigation and reporting. He noted that "in the sciences, the awarding of Ph.D requires the completion of an experiment or group of inter-related experiments". He concluded that the dissertation represents the culmination of the apprenticeship of a rising new generation of mature scholars and trained practitioners.

Grogan (1970:13-15) observed that "if science progresses by accumulation and experiment, then it is clearly vital for the scientist and technologist wishing to advance knowledge in his field to know what has already been achieved. He turns therefore to those records left out by his predecessors...." A piece of research is not regarded as complete until the results were made available and it is a basic principle of scientific investigation. These contributions then represent new knowledge or at least new interpretation of old knowledge and constitutes the latest available information. They are

published in a variety of forms (periodicals, research reports, conference proceedings, patents, standards, trade literature, theses and dissertations etc.

Studies by Emmerson (1957) Downs (1966, 1969) Subbarao (1968) and Itidon (1977, 1978) have shown that library books, periodicals, financial support, quality of teaching staff and the reputation of the university in the academic world are the factors upon which the number of research degrees that a university produces depends.

1.3 STATEMENT OF THE PROBLEM

Communication plays a central role in the life of every man and between all men in the world. Human knowledge is communicated from one individual or group to another through a variety of ways and is documented on such surfaces as books and non-book media.

The increase in university enrolment in Nigeria, particularly postgraduate studies, has become a matter of great concern to University administration and university libraries to have bibliographic control of the theses produced within their university walls. The postgraduate prospectuses of Ahmadu Bello University, Zaria, 1981 - 1982 session clearly stated that "copies of successful thesis shall be deposited as follows, one copy with the university library, one copy with postgraduate school and one copy with the library of the department in which the student has worked." Part of the

requirements of postgraduate degree awards is this submission of theses which are the original contributions to knowledge by the students to the designated places in the university. The information in these thesis needs to be communicated to the other universities and to the world of researchers to know the level of growth of postgraduate studies in the university and the research topics that have been covered by their students.

The need for proper organisation and documentation of theses approved for postgraduate degree awards in universities cannot be over-emphasised. Embling (1974:12) on the usefulness of universities stated that" in so far as developing new ideas and technology means that research will be of direct value to government and industry, the universities in no country would dispute that they have a role to play...." Commenting on the library as an organ of academic discipline, Oni - Orisan (1987:8) maintained that the essence of research is to advance knowledge. Before embarking on any research he further stated that "it is necessary to find out what has gone before, otherwise valuable time and efforts will be wasted in repeating what had already been discovered". Duplicated research is seen by Koestler (1964:65) cited by Akinwumi (1985: 65) as the bane of science or any discipline including the social sciences and concluded that the problem of bibliographic control borders on inadequacy of communication which brings about duplicated research.

Writing from the experience of Indian universities, Kumar

and Kumar (1979:190) acknowledge that the number of dissertations written for the award of doctorate degrees has increased tremendously over the years and that by their nature, these documents are extremely important to research scholars, and therefore their bibliographic control is of utmost importance.

As a means of providing adequate information which will prevent the duplication of research in universities, university libraries and Departments of Library and Information Science have roles to play in bringing to the knowledge of the university administration, researchers, postgraduate students and other members of the library users, a comprehensive bibliographic information (author, type of postgraduate degree, year of award, faculty of award, title and pages). Akinwunmi (1985:65), on the reason for bibliographic control, maintained that "in former times, research and discovery were duplicated in different countries or in different parts of the same country, through the ignorance of the efforts of other workers caused by lack of communication".

Within the thirty years of the existence of Ahmadu Bello University, Zaria 1962-1992, an increase has been noted in postgraduate studies and theses output, a situation likened to "publication explosion" which calls for an adequate knowledge of their growth. In the 1982/1983 session, in the Deans annual report of the postgraduate school it was noted that "a

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particularly significant development in the postgraduate activity during the session was the large number of postgraduates which is the highest in the history of this university. A total number of 350 students graduated at the 1983 convocation".

Ibrahim (1991:1) observed that "The continuing growth in both knowledge and subject literatures and its effective utilization, have become matters of significant concern to contemporary society especially librarians and information specialists.... " This increase in Ahmadu Bello postgraduate theses on natural and applied sciences makes it necessary to conduct a study into their growth at both the departmental and faculty levels from the inception of the university to 1992.

Abbas (1977) and Ezeji (1984) have made efforts to bibliographically organise the postgraduate theses submitted to Ahmadu Bello University between 1962 and 1978. The postgraduate school, Kashim Ibrahim Library, faculty and departmental libraries only lists the theses that are submitted to them. However, no study has attempted to find out if there is an increase or decrease in the number of theses submitted to them and also to identify the factors responsible for the increase or decrease in their number. The absence of a study such as this has created a situation in which the university administration and the academic community are unaware of the pattern of growth of postgraduate theses in these departments under natural and applied sciences in this

university.

The postgraduate students, scientists and technologists do not know of the existence of the information that may be useful to their research and the areas that have been covered by previous researchers; a situation that may lead to the duplication of research. The lack of an organised list of all the postgraduate theses awarded higher degrees in the university may lead to the duplication of research.

1.4 Research questions

Specifically, this study is seeking answers to the following research questions:

i) What is the pattern of productivity of departments in postgraduate theses on natural and applied siences in Ahmadu Bello University from 1967 to 1992 ?

ii) Which are the most productive faculties in postgraduate theses (Master's and doctoral in the faculties offering natural and applied science courses in Ahmadu Bello University from 1967 - 1992?

iii) What is the pattern of distribution of masters and doctoral theses output in the six faculties and the fifty teaching departments that offered natural and applied science courses in Ahmadu Bello University from 1967 to 1992?

iv) What is the trend of distribution of postgraduate theses on natural and applied sciences in the six Faculties from

1967 to 1992?

v) What factors were responsible for the varied number of theses produced by the fifty teaching departments offering natural and applied science courses in Ahmadu Bello University Zaria? from 1967-1992?

1.5 Significance of the study

Given the importance of postgraduate theses to knowledge, this study is significant for its possible outcome to all the departments and faculties under Science and Technology in the university in serving as a guide to all the theses submitted to them by their students for the award of higher degrees, from 1967-1992.

The findings of this study are of great benefit to the university administration in the planning of postgraduate studies and in the organisation of postgraduate theses.

This study lays the foundation for future studies in the area of abstracting all the postgraduate theses produced in all the teaching departments of the university that are science and technology based and publishing them so as to make the world to know the topics that the postgraduate students of this university have carried out researches on.

1.6 Objectives of the study

This study has the following as its objectives:

i) To determine the pattern of growth of the postgraduate theses in science and technology at the master's and doctoral levels in each department and faculty in natural and applied science from 1967 to 1992.

ii) To find out the pattern and trend of distribution of the postgraduate theses aon Science and Technology in Ahmadu Bello University from 1967-1992.

iii) To find out the factors responsible for the dettering output of theses in each of the fifty teaching departments and six faculties under natural science and applied science from 1967 to 1992.

1.7 Scope of the study

This study examines the postgraduate theses produced in the fifty teaching departments under the six faculties that offered natural and applied science courses in Ahmadu Bello University from 1967 to 1992. The faculties and their departments are:

A. Faculty of Agriculture

1. Agricultural Economic and Rural Sociology
2. Agronomy
3. Animal Science
4. Crop protection

5. Plant science
6. Soil Science

B. Faculty of Engineering
1. Agricultural Engineering
2. Chemical Engineering
3. Civil Engineering
4. Electrical Engineering
5. Mechanical Engineering
6. Metallurgy
7. Surveying
8. Water Resources and Env. Engineering

C. Faculty of Medicine
1. Anaesthesia
2. Chemical pathology
3. Community medicine
4. Dentistry
5. Haemathology
6. Human Anatomy
7. Medicine
8. Medical microbiology
9. Obstetrics and Gynaecology
10. Ophthalmology
11. Orthopaedic surgery
12. Paediatrics

13. Pathology
14. Physiology
15. Psychiatry
16. Radiology
17. Surgery.

D. Faculty of Pharmaceutical Sciences

1. Pharmaceutical and Medicinal Chemistry
2. Pharmaceutics and Pharmaceutical Microbiology
3. Pharmacognosy and Drug Development
4. Pharmacology and Clinical Pharmacy.

E. Faculty of Science

1. Biochemistry
2. Biological Sciences
3. Chemistry
4. Geography
5. Geology
6. Mathematics
7. Microbiology
8. Physics
9. Textile Science and Technology

F. Faculty of Veterinary Medicine

1. Veterinary Anatomy
2. Veterinary parasitology and entomology
3. Veterinary pathology and microbiology

4. Veterinary physiology and pharmacology
5. Veterinary public health and preventive medicine
6. Veterinary surgery and medicine.

The study is limited to the postgraduate theses of the above departments at both the master's and doctoral levels and to find out the factors responsible for the low and high output of theses in these departments.

1.8 Basic Assumptions

The following assumptions have been drawn for this study:

i) A quantitative study of all the postgraduate theses on science and technology of Ahmadu Bello University will be of assistance to academic planners of the university.

ii) The knowledge of the factors responsible for the growth of postgraduate theses on science and technology will enhance postgraduate studies in the university.

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REFERENCES

Abbas, A.A. (1977). "Annotated Bibliography of Higher Degree Theses Submitted to Ahmadu Bello University, Zaria from 1962 - 1975. "Ahmadu Bello University (BL.s project)

Abdullahi, T.T. (1991). "The Preservation Problems of Information Sources in the Eleven Faculties of Ahmadu Bello University. "unpublishd M.L.S. thesis) Department of library and information science, Ahmadu Bello University, Zaria p.4.

Ahmadu Bello Univesity, Zaria. Postgraduate school, Dean's annual report 1982/83 session. p.16.

Akinwumi, K. (1985). "Local Bibliographic Control in the Social Sciences: problems and suggested solutions "Nigerbilios vol. 10, (3) pp. 63 - 67.

Downs, R.B. (1966). "Doctoral Programs and Library Resources. "College and research libraries Vol. 27 (2) pp 123 -129.

Downs R.B. (1969). "Doctoral programs and library resources "College and Research Libraries Vol. 30 pp 417 -421.

Egbule, B.C. (1977). "A History of Ahmadu Bello University Library Complex 1962-1977" (unpublished M.L.S. thesis) Ahmadu Bello University, Zaria pp. 20-25.

Embling, J. (1974). A Fresh Look at Higher Education: Europeans implications of the Carnagie Commission reports New York: Elsevic Scientific publishing Company, pp 11-32.

Emmerson, W.L. (1957). "Adequacy of Engineering Resources for Doctoral Research in a University Library" College and Research libraries vol. 18, pp 455-460.

Ezeji, J. (1984). "Dissertation Abstracts, Nigerian Abstracts of Postgraduate Theses and Dissertations Submitted to Ahmadu Bello University, Zaria 1975-1978" (B.L.S. final year project) Ahmadu Bello University, Zaria.

Grogan, D. (1970). Science and Technology: An introduction to the Literature. London: Clive Bingley pp.13-15.

Ibrahim, S.K. (1976). "The address of Sir Kashim Ibrahim on the opening of the new Kashim Ibrahim library Ahmadu Bello University, Zaria" on 10th December, 1976. p.3

Ibrahim, U. (1991). "Bibliometric Analysis of Entomological Research in Nigeria 1900 - 1983" unpublished M.L.S thesis. Ahmadu Bello University, Zaria. p.1

Itidon, S.E. (1977). "A Quantitative Assessment of Adequacy of Nigerian University Library Collections in the Humanities and Social Sciences in Relation to Postgraduate research". Upublished Ph.D thesis, Department of library studies, University of Ibadan, Nigeria p.45.

Itidon, S.E. (1978). "Factors in the Production of Higher Degrees in the Humanities and Social Sciences" International Library Review Vol. 10 (3) pp 301-311.

Kumar, G. and Kumar, K. (1979). Bibliography 2nd revised edition. New Delhi: Vikas publishing company, 190.

Malinowsky, H.R. (1976). Science and Engineering Literature. Littloton: Libraries unlimited, p.39.

Ojo, F. m(1983). Nigerian Universities and High level manpower Development. Lagos: Lagos University Press, pp. 26-27.

Ori-orisan, B.A. (1987). "The Library as an organ of academic dicipline Niger biblos. Vol. 12, (3).

Okafor, N. (1971). The development of universities in Nigeria: a study of the political development in Nigeria 1968-1907) London: Longman "The library as an organ of academic discipline. Nigerbiblos, Vol. 12, (3) pp. 18-20)

Subbarao, S.M. (1968). The place of library resources in doctoral programs College and Research Libraries Vol. 29, (5) pp. 425-430.

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CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

Several studies have been carried out on the growth of subject literatures in various fields of knowledge but less has been done on the growth of theses and dissertations produced in universities in the natural and applied sciences as well as the factors responsible for their increase or decrease.

The purpose of this chapter is to review the available literature that are related to this study. This review has been categorised into four topics namely: Science and Technology, Library collection and postgraduate studies, Bibliographic control/growth of literature and Bibliographic organisation of theses.

2.2. Science and technology

Science has been defined as the systematic study of nature with the aim of identifying every detail of the diverse life histories and phenomena in nature. The greatest contribution science has made to human progress has been the discovery and perfecting of experimental methods. The scientific methods hold true for all the science and technology and are of course, widely accepted and applied in other disciplines. Oke(1978:4) defined technolgy as "The selective adaptation of

one or more processes and materials identified by science and their embodiment in devices designed to serve the need of making a better man, its progress from the primitive stage towards advanced social evolution". He stated further that "the aim of

technology has always been the extension and improvement of material culture by the observation and use of material objects, phenomenon forces and by recognising the limitations imposed by material law. It was against these limits that man has directed his efforts to createmachines/instruments which partly or wholly eliminated the necessity of expending his own manual labour on the work required to provide the necessities and amenities of life".

Kochen (1974:3) commented that few phenomena inspire a greater sense of wonder than does the growth of knowledge in human societies. He further stated that "science one of man's outstanding achievements, is a good example of a growing body of knowledge because of its cumulative and self correcting nature". Knowledge he continued is viewed as represented by the size and quality of the population which adds to and uses the records."

Grogan (1970:13) defined science as a "body of tested knowledge". He maintained that if science progresses by the accumulation of facts derived from observation and experiment, then it is clearly vital for the scientist wishing to advance knowledge in his field to know what has already been achieved.

The scientist, he further stated, turns therefore to those records of observation and experiment left by his predecessors. In the words of Wood (1973:1) it is a desirable feature of scientific life that scientists should communicate their results to one another. In the first place, it is only in this way that unnecessary duplication of scientific efforts can be avoided and in the second, a knowledge of what other scientists are doing can be of enormous benefits in stimulating thought and provoking new ideas.

Writing on the barriers to the accessibility of scientific journals in Nigeria Nwagha (1980:201) posited that the advancement of science depends to a large extent on the accumulation of past findings and every scientist builds on the knowledge of other scientists. Scientists, therefore, spend a great deal of their time communicating, and rightly so because the penalties of not communicating are serious.

Omotola (1987:10) discussed the path to economic and technological development in Nigeria and observed that the ability of Nigeria to develop economically and technologically is doubtful without a free access to records and vital information through effective library services. According to Grogan (1982:27) science and technology in particular are dependent on the printed word as a means of communication. He further stated that surveys have shown a surprising amount of duplicated research and a general wasted effort due to disregard of the published literature.

Aiyepeku (1974:118) acknowledged that in science and technology the significance of exploiting information contained in subject literatures to achieve rapid national development has long been recognised. He gave an example of the report of the (British) Committee on industrial productivity (1949) which declared "that it has been our view throughout that an early increase in productivity could be achieved by the rapid application of existing knowledge rather than by the conduct of fresh scientific research. He further stated that "in a decade later, the British Advisory Council on Scientific policy declared that a country's wealth and power are today largely determined by the extent of the scientific knowledge and its capacity to use that knowledge.

Scientific research is international and discoveries made anywhere in the world help advance the frontiers of scientific knowledge . Burchinal (1977:354) pointed out that scientific results generally are published openly for all to use (at least by most academic researchers) whereas most technology is developed for ultimate sales purposes.

Many nations of the world, both in the developed and in the developing, have come to the realization that science must be cultivated, planned and that clear cut policies have to be laid out in its approach. It is a universally accepted fact that research development activities lead to innovation.

Writing on planning the infrastructure of information, Ononogbo (1986:57) observed that the educational system of a country must be such as to ensure the production of knowledgeable scientists, technologists, engineers and economic experts who will constantly be engaged in research and development activities for the continual generation of new knowledge of information. He further stated that as people with high academic propensities grow quantitatively, the normal sequel may be the establishment of research institutes and national laboratories. He concluded that these qualified people require technical information for their routine activities.

On the merits and demerits of economic modernisation based on imported intensive technology, Dike (1987:13) commented that the expansion rate of the economy of Nigeria is predicated on the technological orientation of current investment and changing quality of the labour force. If the economy must be shifted out of its low - level "equilibrium trap" the labour processes must necessarily incorporate high-technology production system.

The lack of a proper attitude to scientific and technological research in the past has probably been responsible for the migration of brilliant Nigerian Scientists to research institutions abroad where they are assured of a more conducive atmosphere. One of the problems that have befallen researchers in the present Nigerian context is their

inability to see their research prototypes converted into commercial quantities. Rusting away in the laboratories of our universities and other research institutions are devices and gadgets (Agricultural implements, stoves, Yam pounders, electrical appliances, etc) which could meaningfully change the lives of most Nigerians.

2.3. Library collection and postgraduate studies

Graduate studies as observed by the University Grants Committee on Libraries, London (1967) are likely to become increasingly important in all universities and will make considerable demands on library resources both for monographs and periodicals and for bibliographical aids. The graduate, they went further, may take a course of instruction involving seminars, lectures and tutorials followed by a written examination together with the presentation of a short thesis, or he may devote the whole of his time to preparing a thesis incorporating original work, which may in due course be published. In conclusion, they stated that the books and periodicals required by the graduates for their studies should gradually be available in a university library. "It further observed that "an impressive collection of research materials in any subject, displayed on open access, is an incentive to the young research worker to set and maintain his standards and to perpetuate a tradition of scholarly excellence".

In a study on library resources of American universities and colleges which offered doctorate degrees between 1957 and 1966, Downs (1966:74) discovered that 121,750 doctorate degrees were granted by the one hundred and twenty institutions of higher education during the decade. Of the total, 77,465 (64%) degrees come from thirty eight institutions with library holdings in excess of a million volumes each. Forty universities whose libraries spent more than $500,000 each for books, periodicals and building in the decade granted a total of 79,126 doctoral degrees (65%) of the whole figure. This showed that a correlation existed between the number of degrees conferred and the level of financial support. It was concluded that "the strongest graduate offerings are at institutions with the strongest libraries". The study made use of a summary of tabulation produced by the American Council on Education from 1957 to 1966 which presents the number of degrees awarded by each institution with the figures broken down further by broad categories as Humanities, Biological Sciences, Social Sciences and a miscellaneous group not classifiable by fields.

Subbarao (1968) discussed some important factors upon which the production of doctoral degrees in an institution depends. These are financial aid available to graduate - level-students, library resources, the size and structure of the faculty members, and the general reputation and standing of the institution in the academic world. An institute

continued may emphasise the advancement of knowledge and promotion of research and also provide excellent physical and even library resources and may not attract the best efforts and the right type of faculty members. Good teaching staff will surely see that the library collection pertaining to their field and discipline is adequate and their doctorate is bound to be good not because of their library resources but because of the quality of staff and students. Subbarao's work supplements an earlier paper by Downs (1966) who agreed with him that while the factors involved in successfuly implementing a doctoral programme are many and complex, to carry out such a programme in a variety of fields, there should be at least three thousand current periodicals and five hundred thousand volumes. He made use of Downs ranking of institutions according to library resources and numbers of doctorates produced and found out that an institution may have an edge over another in terms of the ranking in library resources but may not confer more than the other institution in terms of the number and percentage of doctoral students that it is able to graduate. In his conclusion he stated that "the existence of good library facilities is generally, at best, a necessary condition for the production of doctorates.

Ifidon (1978:309) in reviewing the works of Downs (1966, 1969) and Subbarao (1968) noted the flaws in these studies and stated that "no reasons were adduced for institutions that ranked high in their library strength but did not produce

commensurate number of doctoral degrees and that Downs' recommendation of a minimum size of collection of 500,000 for a doctoral degree-granting institution has no scientific basis". On the number of current periodicals for doctoral studies pr··· ·bed by subbarao he found them to be arbitrary

McInnis (1971:14) argued that the aggregate number of volumes gave only general impression of overall strength or weakness of a library and that measurements as that of Downs and Subbarao had no clearly defined objective standard of comparison. He then proposed an approach which involves checking for availability in the library being assessed, the citations, from a random sample, of published research in the selected disciplines.

In Nigeria, Ifidon (1978:45) presented some data on the relative significance of books, periodicals and teaching staff on the production of higher degrees in the humanities and the social sciences in two universities (Ibadan and Zaria) for a five year period 1968 to 1973. The major findings that emerged is that of the three factors examined; periodical publications have the most significant effect on the production of higher degrees. Next to periodicals come books as a contributory factor in support of postgraduate work. Teaching staff make the least contribution. This he explained is that postgraduate students are more self reliant and require less guidance from the teaching staff than the undergradutes. Other lesser factors he noted are the teaching method, the increasing

number of postgraduate programmes and their changing content and time scale, the intellectual climate of the university, proximity of other libraries and the socio-economic characteristics of the university. Regression analysis was the method employed in the study to analyse the data while the Statistical Package for the Social Sciences was used in computing the regression equation.

In an earlier study in 1977 Ifidon posited that the number of research degrees which a university produces is "a function of library books, periodicals and of the number and quality of teaching staff....who participated in the collection building exercise". Other factors according to him include the availability of financial resources, the number of postgraduate students enrolled and the reputation and standing of the institution in the academic world.

Ogunsheye (1971:92), in an article entitled "Research as Basis of Development", observed that the university library should provide adequate teaching, learning and research materials for the academic community. She stated that periodicals indicate what is happening at the ever advancing frontiers of knowledge and are compulsory reading materials for research workers. She concluded that "all large libraries by their nature and histories are repositories of knowledge for all types of research. Their operation, if they are to be efficient and effective, demand continuous study, analysis,

experimentation and the finding of solutions that will improve their services and resources.

In the view of Olatioye (1968:28) "In a university, a library is regarded as the workshop where the members of the community hope to achieve the ideals for which the institution was set up. Many universities, he stated, are known to have attracted good scholars because of the wealth of the collection in their libraries.

Writing on university development in Africa, Ike (1976) observed that if the Nigeria university is to emerge, universities in Nigeria must engage actively in research into the process of Nigerian higher education. He recommended that since every Nigerian university has a Faculty of Education and also develops postgraduate studies, it would be helpful for them to include facilities for postgraduate studies in higher education. This he stated will lead to the availability of academic staff whose research interests would be primarily in the field of higher education and will also lead to a flow of theses or dissertations on problems of Nigerian higher education.

On the growth of postgraduate studies, Ojo (1983:107) discussed that "Nigerian universities especially the university of Ibadan have been expanding their postgraduate programmes, and have produced many graduates with her degrees. The University of Ibadan granted its first higher degrees (2 masters and 2 Ph.D) in 1963 and

the annual output has risen significantly since then. For example, during the 1963 to 1970 sessions, the university awarded 52 masters, 86 Ph.D degrees and 305 postgraduate diploma". Between 1966 and 1977 the University of Lagos he reported, trained a significant number of postgraduate students:27 Ph.D, 211 masters and 360 postgraduate diplomas.

Similar to these and in an introduction to the Dean's annual report of the postgraduate school, Ahmadu Bello University in the 1982/83 session, it was noted that" a particularly significant development in the postgraduate activity during the 1982/83 session was the large number of postgraduate which is the highest in the history of this university. A total number of 350 students graduated at the 1983 convocation" A breakdown of the number was given according to faculties and degree (Ph.D, masters and postgraduate diploma).

2.4. Bibliographic control/Growth of literature

The most disturbing research problem in African studies as noticed by Parker (1973:156) may not be the inadequacy of publications in this field, at least from the scholarly standpoint, but lack of bibliographical control of the potentially relevant materials issued either in Africa or in the western world. Efforts to achieve this control, which in effect, means an effective access to recorded knowledge about

Africa, whether sociological, economic, political, historical or scientific, have in the absence of a well co-ordinated, officially funded bibliographic work at the national level, been left to individual bibliographers, librarians and scholars. He concluded that bibliographies, national, subject or special, being instruments of communicating knowledge, must be compiled with the user needs in mind.

In a practical guide to the work of compilation, Robinson (1960:13) stated that the aim of bibliography is to assist an inquirer in discovering the identity of books or other documentary materials which may be of interest to him.

Kibirige (1978:321) in his article "Bibliographical control in Africa: State of the Art" observed that the industrialized countries of Western Europe and the United States of America and the developing countries of Africa face he problem of information explosion in different ways. He noted that while the Western Countries have records about their cultures within their libraries, East Africa like other former colonies have large chunks of their cultural history stored away in large metropolitan libraries of Europe.

From the point of a cataloguer, Ojo (1982:127) examined bibliographic control in Nigeria and listed its problems as including legal deposit, problems of acquisition and shortage of personnel.

Iwuji (1984) reviewed the issues problems and prospects of bibliographical control in Nigeria and from the perspective

of universal bibliographic control and the universal availability of publications he concluded that although "the climate and environment far closer bibliographic control exists in Nigeria, the available facilities are not yet adequate to cope with the problems involved".

Agada (1977:131) in his study of the problems involved in the bibliographic control of Nigerian publications found out that ineffective legal deposit law, diffuseness of publication sources, lack of publicity for publications, poor distribution services of vernacular literatures and inadequate personnel are some of the obstacles to bibliographic control in Nigeria. Bibliographic control at the international level he concluded will enable all countries benefit from the knowledge and discoveries of one another and that no country can exist in isolation, for each one has something to contribute towards the survival and progress of the human race.

The revolution in the printing industry by Gutenberg in the 1450's which has popularised the use of books contributed immensely to the growth of the world literature. Aiyepeku (1973:8) maintained that the growth of information was first recognised in the sciences and was later appreciated in the social sciences and humanities as well. These growths he continued have forced serious-minded researchers to increase their attention to the problem of keeping up with published and unpublished literature even in relatively narrow field of specialization. According to him, "the first group of

investigators to attack the newly acute problem of literature growth were the scientists actively engaged in research in the subject fields themselves. Only later did librarians and information scientists begin to take leading role that they now occupy...."

In the first comprehensive review article concerning research efforts directed at a better understanding of the characteristics of subject literatures produced and used by researchers, Stevens (1 6) identified two broad categories of what he called "statistical studies of research literature". The first is a more or less comprehensive count and analysis of the number of publications in a given field... for the amount of research in different countries, the amount produced during different period, or the amount produced in different subdivisions of the field. According to him, the data base for this study is usually a bibliography. The second type he continued involves the study of the literat ad by research workers in a given field, usually by means of citation analysis of references in selected journals, in indexing and abstracting services, or in library holdings.

To cope with the unprecedented growth of literature in the fields of Biochemistry and Biophysics, Sengupta (1973:193) prepared a ranking list of periodicals on the basis of citations in the annual review of Biochemistry for 1968, 1969, and 1970. A method of analysing the number of citations in relation to size of the journal concerned and a e length

of the papers published was developed and applied in the study. The results were discussed in relation to Bradford's Law of scattering and an extension of the law was suggested.

In an exploratory study of the growth rates in Economics and Psychology and of which comparisons were made with those of Biology, Electrical Engineering, and Physics, Holt and Schrank (1968:19) obtained their data from the index of economic journals, Psychological Abstracts, Biological Abstracts and Science Abstracts parts A&B and found out that the similarities between the growth patterns are striking. They concluded that "the growth in professional literature in a field over a fairly long time span of 40 to 80 years fluctuates around an exponential path and a more refined analysis of long-term growth trends will require better understanding of these fluctuations".

In a study which emanated from the compilation of a comprehensive bibliography of the literature of scientific research in Nigeria 1900-1975, Aina (1983:129) noted that there was a steady growth in the number of publications from the third decade (1920) except during the period 1940-1949 when there was a decline which was due to the Second World War that provided no conducive condition for research investigations. He observed that there was a big jump during the period 1950 - 1959 and also in the succeeding decades. The increased growth according to him became noticeable after Nigeria gained her independence in 1960 when the indigenous

government generated the awareness for scientific activity by establishing four new universities and more scientific research institutes. He made a graphic representation of the growth of publications on decade basis and used the Statistical Package for the Social Science (SPSS) in the statistical analysis of the entries.

In a similar analysis of the literature of agriculture in Nigeria, authors 1961-1980 Adegbule-Adesida (1987:25) observed that Nigerian's authors contributed over 53% of the total literature and that 70% of their contribution was published in local journals. He noted that during the first decade (1961-1970) the contribution of Nigerians was low as a result of the following factors (a) very few agricultural scientists in the country and (b) the civil war which might have hampered research activities. In his conclusion he agreed with Aina (1973) on the reasons that contributed to the substantial growth in publications in the 1970's and suggested the establishment of specialized information centres to provide national bibliographies, abstracting and indexing services for certain specialised subjects in the country. Data for the study were gathered from two international abstracting services namely, Abstracts on Tropical Agriculture and the World Agricultural Economics and Rural Sociology Abstracts.

On the basis of bibliographic data obtained through a survey of the members of the Society of Toxicology from 1960 to 1969, Montgomery (1973) made use of the members of the

society listed in the 1970 directory that were asked to submit a 1960-69 bibliography marked to show items containing original toxicity data, and responses were tabulated in terms of document count reported by individual members. She noted that "scientific productivity in terms of document output is an accepted indicator of basic research activities", an increase in document output is an accepted indicator of basic research activity", an increase in document output by members was shown in the study.

The Department of Library Studies, University of Ibadan in a colloquium on education for librarianship in (1974 mentioned that UNESCO was proposing a world-wide information system to which all countries of the world both developed and developing would be linked and would enable them to share in the accumulated knowledge of the world, thus sparing them from repeating the research already completed elsewhere or duplicating mistakes already corrected somewhere. It was concluded that "the rapid growth of knowledge in the twentieth century has led to an increase in world knowledge and consequent production of world literature".

2.5 Bibliographic organization of theses.

In his work for graduate students and scholars of pedagogical research, Parker (1973:155) made a significant contribution to African bibliography in the fourth of a series of bibliographies of dissertations on foreign education

awarded by American universities. Some 291 entries were arranged alphabetically by authors' surname with a subject index to provide subject access.. Each entry has author and title of the dissertation, [redacted], institution of award, source of entry whether culled from the U.S library of congress; A List of American Doctoral Dissertation on Africa; Doctoral Theses accepted by American Universities; Dissertation Abstracts; Dissertation abstracts Interational; or Index to American Doctoral Dissertations.

The long abstracts taken verbatim from Dissertation Abstracts or Dissertation Abstracts International generally specify the problem that the author of the dissertation sought to solve. The bibliography lays no claim to exhaustiveness as the author made no effort to include all known dissertations on education which were available in the major sources that he consulted. This raises the question of his criteria for selection which he did not provide anywhere in the bibliography. However, this was the first attempt to bring together in one volume dissertations on African education.

Kumar and Kumar (1979:190) writing on dissertation bibliographies stated that universities normally require a candidate working towards a doctorate degree to write a dissertation under the supervision of a guide. The dissertation, they stated, is expected to show evidence of original research and is supposed to form an important category of documents for researchers in the concerned field.

The dissertations are considered as primary sources of literature or information. They discussed the attempts made to bring out special bibliographies of theses of various types on the basis of subject or country awarding the degree among which are Dissertation Abstracts International which lists abstracts of doctoral dissertations submitted to Xerox University Microfilms by more than 345 cooperating institutions which is a guide to American and Canadian doctoral dissertations. On individual countries, they mentioned the efforts of the Association of Indian Universities which has done service to Indian scholarship by bringing out the bibliography of doctoral dissertations accepted by India universities from 1859 to 1970. In the United States of America, mention was made of the American Doctoral Dissertations which claimed to list all the United States and Canadian theses. The lists of two universities also discussed are, title of dissertations approved for higher degrees in Cambridge University and successful candidates in oxford university.

Selim (1976:4) in the preface to the first edition of American Doctoral Dissertations on the Arab world 1983-1974 opined that "the need for a lists of American Doctoral dissertations on the Arab world has long been felt by librarians, students and academic researchers", the list he stated will bring to light unpublished materials on that part of the world and would meet the needs of scholars, who are

tending more and more to consult dissertations. By indicating what work has already been done, the list he continued will assist students and Professors in their search for new projects and subjects worthy of investigation. In his attempt to compile the above bibliography, he discovered that many university dissertation lists were found either to be incomplete or to be issund irregularly and that some had no printed lists at all. The bibliography covers comprehensively doctoral dissertations on all subjects related to the Arab world accepted by universities in the United States and Canada from 1983 through the academic year 1967-1968. The entries are arranged alphabetically by authors and include titles of the dissertations,the name of the university or institution in abbreviated form, and the year the dissertation was accepted.

An important and all too frequently overlooked information source for students of literature according to Baker (1978) is the doctoral dissertations. Explaining further he stated that although some of the bibliographies of literature and criticism do list relevant dissertations, it is difficult to ascertain just how comprehensive such listings may be and so one needs an understanding of the kinds of information sources that will give access to dissertations. In the United States he went further, doctoral candidates at many colleges and Universities sent their dissertations to a clearing house, University Microfilms, in Ann Arbor Michigan. These dissertation including Canadian and selected foreign

dissertations are abstracted in Dissertation Abstracts International.

A major source of research findings on Nigeria is the list on Nigerian subject by Toye (1992) which is intended as a research and reference tool. Theses on Nigerian subjects and theses by Nigerians which are not necessarily related to Nigerian topics are included. Sources include the collection of theses at Ibadan university library and the overseas. The entries are arranged under broad disciplines and further subdivided into specific subjects. A total of 3,557 entries are included.

In a comprehensive listing of dissertations, entitled "Nigerian Universities Dissertation Abstracts (1960-1975)" which covers all disciplines taught in Nigerian universities, Osiobe (1989:16) described his work which is arranged by broad subject categories and within these categories, alphabetically by author, a unique reference tool. Defended masters theses and Ph.D dissertations are included in the listing. Each entry includes title, awarding institution, date of award and total number of pages, followed by the abstract.

Ezeji (1985) compiled the abstracts of theses and dissertations submitted to Ahmadu Bello University from 1962 to 1978. The source of the entries were the collections of postgraduate theses and dissertations in Kashim Ibrahim Library. The various departments and the libraries of the Institutes of Agricultural Research and Institute of

Administration, the annotated bibliography of higher degrees theses submitted to Ahmadu Bello University from 1962 to 1975 by Abbas (1977), Educational Research in Northern Nigeria: an annotated bibliography of student theses and projects vol.I, by Adeyanju (1980) and the index of postgraduate dissertations in science and technology accepted by Nigerian Universities from 1948 to 1978 by Akande (1979). A total of 502 theses and dissertations were covered while the abstracts of (444) theses that were physically available were provided in the bibliography.

Ofori and Amune (1984) published a bibliography entitled, Retrospective Index to Nigerian Doctoral Dissertations and Masters' Theses in Science and Technology 1965 to 1980. Vol.1. In their work, the listing of entries was grouped broadly under subject headings. Some 2122 titles were covered. The index had addresses of university libraries and other organizations to which applications can be made regarding availability of theses .

Afolabi and Muhammed (1984) analysed 371 undergraduate projects submitted to the Department of Library Science, Ahmadu Bello University, Zaria for the award of Bachelor of Library Science degree from 1972 to 1983. The analysis were made by subject, geography and type of library for the purpose of determining the most frequently and less frequently discussed areas. The study revealed that library service and library surveys were the most discussed subjects and that

Kaduna state was the most discussed state while public library was the most discussed type of library. The research methodology employed was documentary. They made use of a bibliography of library science projects produced by the Faculty of Education Library. The study, apart from limiting its scope to library science project, was only concerned with the undergraduates.

Akoh (1992:73), in an analytical study of postgraduate theses, submitted to the Faculty of Agriculture, Ahmadu Bello University, Zaria from 1979 to 1990, found out that a total of 218 postgraduate degrees was produced of which 200 were Masters while 18 were Doctoral degrees and noted that there was an increase in the number of theses produced each year except the last two years in which there was a decline in the theses produced. She recommended that theses should be made available for use in the Faculty of Agriculture Library. The study was confined to the postgraduate theses on agriculture and the documentary research method was utilized in the study.

An analytical study of the University of Ibadan 's Department of Library Studies higher degree theses/dissertations titles from 1973 to 1982 by Nweke (1985:27) reported that the first Master of Library Sciences (MLS) thesis was produced in 1974. He made use of a collection of the yearly bibliographies of the approved M.L.S and other degree dissertation and theses indexed by Greaves and with the assistance of the staff of the library studies departmental

library from 1973 to 1982. He noted a steady increase in theses output and discovered that out of a total of 128 dissertations/theses titles, four were Ph.D theses one M.PhiL thesis, while 123 were M.L.S dissertations. He concluded that the availability of teaching staff with specialization in a particular subject area to supervise the students theses is one of the determinants of the subject areas investigated by the M.L.S/higher degree students.

2.6 Summary

In each year, masters an' doctoral candidates in leading colleges and universities throughout the world contribute significantly to the extension of man's knowledge through the requirements for higher degree awards. The quality of students enrolled for postgraduate programme, financial aid available to graduate students, the size and quality of the members of the academic staff, adequate library resources are some of the factors upon which the production of higher degrees depend. In the words of Ifidon (1978:310) "the number of research degrees which a university produces is a function of library books, periodicals and the number and quality of the teaching staff". Downs (1966:127) corroborated this view when he stated that "the strongest graduate offerings are at institutions with the strongest libraries" while Subbarao (1968) maintained that the existence of good library facilities is generally, at best a necessary condition for the production of doctorates.

From the review of related literature, it is evident that no study has been previously conducted on the Ahmadu Bello University Postgraduate theses on science and technology to find out the factors responsible for the low and high output of these primary information sources in the fifty departments that make up natural and applied sciences in the university.

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REFERENCES

Adegbule - Adesida, E.K. (1987). "Characteristics of the Literature of Agricultural Research in Nigeria 1961 - 1980" Nigerian Library and Information Science Review. Vol. 1, 5 (1 & 2) pp 25-36.

Adeyanju, T.K., (1980). Educational Research in Northern Nigeria An annotated bibliography of students theses and projects. Ahmadu Bello University, Zaria.

Afolabi, M. and Mohammed, Z. (1984). "Subject and Geographical Analysis of Final Year Undergraduate Library Science projects. Ahmadu Bello University, Zaria" Library Scientist Vol. 11, pp 32-44.

Agada, J. (1977). "Bibliographic control: problems involved in the control of Nigerian publications" (B.L.S. final year project) Ahmadu Bello University, Zaria. p.131.

Ahmadu Bello University, Zaria. Postgraduate School "Deans annual report" 1982/83 session.

Aiyepeku, W.O. (1973). "Bibliometric and Documentation Characteristics of Geographical Literature on Nigeria 1900 - 1970". Unpublished Ph.D thesis (Library Science) University of Ibadan, Nigeria.

Aiyepeku, W.O. (1974). "UNISIST: Its Implication and Technological Information Policies in Nigeria". Nigerian Libraries Vol. 10 (2&3) pp.117 - 130.

Akande, O. (1979). "Comprehensive Index of Postgraduate Dissertations in Science and Technology accepted by Nigerian Universities 1948-1978" Lagos: National Science and Technology Agency (NSTA) 74p.

Akoh, J.A. (1992)" An Analytical Study of Postgraduate Theses on Agriculture submitted to Ahmadu Bello University, Zaria. 1979 - 1990" (B.L.S) final year project. Ahmadu Bello University, Zaria.

Baker, R. (1978). Introduction to library research in french literature Colorado: Westview press, p.99.

Burchnical, L.G. (1977). "International transfer of Scientific and technical information" Serials Librarian Vol.1, (4) pp.353 - 356).

'Committee of Vice-Chancellors of Nigerian Universities (1975) the Nigerian Universities and the Udoji Commission" p.7.

Department of Library Studies (1974). University of Ibadan. "colloquium on education and training for librarianship in Nigeria 15-19th march 1974.

Dike, E. (1987). "The dilemma of choice of technology". The Guardian August 10, p.13.

Downs, R.B. (1966). "Doctoral programms and library resources" College and Research Libraries Vol. 27, (2) pp 123 - 129.

Downs, R.B. (1969). "Doctoral degrees and library resources" College and Research Libraries Vol. 30, pp. 417 - 421.

Ezeji, J. (1984). "*Dissertation abstracts: Nigerian abstracts* of postgraduate theses and dissertations submitted to Ahmadu Bello University, 1975-1978" (B.I.S) final year project) Ahmadu Bello University, Zaria.

Ezeji J. (1984). "Ahmadu Bello University, Zaria 1962 - 1978" Kashim Ibrahim Library, Nigeri p.313.

Grogan, D. (1982). Science and technology" an introductio to the litrature. 4th edition. London: Clive Bingley. p.10.

Holt, C.C. and Shrank, W.E. (1968)." Growth of the Professional Literature in Economics and other fields and some implications" American Documentation Vol. 19, (1) pp. 18-26.

Ifidon, S.E. (1977). "A quantitative assessment of adequacy of Nigerian University library collections in the humanities and social sciences in relation to posgraduate research" Unpublished ph.D thesis (Library Science) University of Ibadan, Nigerian p.45.

Ifidon, S.E. (1978). "Factors in the production of higher degrees in the humanities and social sciences" International Library Review. Vol. 10, (3) p.301-311

Ike, V.C. (1976). "University development in Africa: the Nigerian experience" Ibadan: Oxford university press. p.229

Kibirige, H.M.(1978). "Bibliographical control in Africa: State of the art" International library Review Vol. 10. (3) pp. 312-226.

Kochen, M. (1973). Integrative Mechanism in Literatute Growth. London: Greenwood press. p.3-16.

Kumar, G. and Kumar, K. (1979). Bibliography 2nd revised edition. New Delhi. Vikas publishing Company, p.

McInis, R.M. (1971). "Research collections an approach to the assessment of quality" Institute of Professional Librarians of Ontario (IPLO) Quarterly Vol. 13. pp. 13-22).

Montgomery R. (1973). "productivity in toxicity papers" Journal of American Society for information science Vol 24, pp.402-403.

Nwagha, G.K.N. (1980). "Barriers to the accessibility of scientific journals in Nigeria" International Library Review Vol.12, pp 201-207.

Nweke, K.M.C. (1985). "An analytical study of Ibadan library school higher degrees dissertations/theses titles 1973 - 1982" Nigerian Libraries Vol 21, (2) pp. 39 - 49.

Ofori, P.E. and Amune, S.A (1984). "Retrospective Index to Nigerian Doctoral Dissertation and Masters Thesess in Science and Technology 1985-1980". Vol. 1, Gaskiya Corporation.

Ogunsheye, A. (1971). "Research as basis of development", Nigerian Libraries Vol. 7 (1 & 2) pp 89-99).

Ojo, A.A. (1982). "Bibliographical control in Nigeria, problems and prospects" (paper presented at the Nigerian Library Association seminar on problems of cataloguing and classification in Nigerian libraries" 19th - 23rd July p.27.

Ojo, F. (1983). Nigerian Universities and High Level Manpower Development Lagos university press pp. 107-108.

Oke, F. E. (1978). "Development of modern technology (Paper presented at the annual conference of the Nigerian library Association held at Ilorin" December 3-7 1978.

Olatioye, A. O.(1968). "The University Library and its Community", The Lagos librarian Vol. 3, (4) p. 28-33.

Omotola, E.G. (1987). "path to economic and technological development in Nigeria: the role of libraries" Nigerbiblios vol. 12, (1) pp 10-11.

Ononogbo, R. H. (1986). "Planning the Infrastructure of Information 1971-1979" International Library Review. Vol. 18, (1) pp 57-74).

Osiobe, S.A. (1991). "Nigeian universities Dissertation Abstracts, A complete listing of dissertations", Vol 1 1960-1975. University of portHarcourt press, 1989. 467p In African Book collection limited, catalogue no 3 1991. p.14

Parker, R. (1973). "American Dissertations on foreign education: A bibliography with abstracts" in Aguolu, C.C. Nigerian libraries. Vol.II, (1&2) 19 pp.55-156.

Robinson, A.M.L. (1960). Systematic bibliography: A practical guide to the work of compilations 3rd editon London: Clive Bringley, p.13.

Salim, G. D. (1976). American Doctoral Dissertations on the Arab world 1984-1974. Washington: Library of Congress. pp 4-5.

Sengupta, I.N. (1973). "Recent growth of literature of biochemistty and changes in ranking of periodicals" Journal of Documentation Vol.29, (2) pp. 192-211.

Stevens, R.E. (1953). " The use of library matarials in doctoral research: a study of the effect of differences in research method library quarterly Vol. 23, pp. 33-41.

Subbarao, S.M. (1968). "The place of library resources in doctoral programs College and Research libraries Vol.29, (5).

Wood, D.N. (1973). Use of earth Sciences literature london: Butterworths.

Yusuf, T. M. (1973) Creating the African University: Emerging issues of 1970's" Ibadan: University press, p.185-195.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

The purpose of this chapter is to outline the research methodology that is used in the study and to describe the population of the study, data collection instruments, procedure for data collection, and the procedure for analysing data.

3.2 Research methodology

The researcher undertook a study of various literatures of similar studies like Schlacter (1972) Chen (1978) Nweke (1985) and Akoh (1992) and discovered that the most suitable research methodology for the gathering of the bibliographic information of postgraduate theses was the documentary research method.The researcher employed this method and recorded the following information from each of the one thousand and thirty one postgraduate theses on natural and applied science produced by the fifty teaching departments under the six faculties offering natural and applied science courses in Ahmadu Bello University (Author, title of each thesis, type of postgraduate degree (M.sc or), department, and year of award). The data collection started from the first postgraduate thesis produced by each department to the last thesis produced and awarded a higher degree in December 1992.

The questionnaire and interviews were used to gather information from the respondents on the factors that account for the low and high number of theses output from each of these department.

3.3. The population of the study

The postgraduate theses produced by the fifty teaching departments, of the six faculties. The faculty of science that offered natural science courses and the other five faculties: (Agriculture, Engineering, medicine, pharmaceutical sciences and veterinary medicine that offered applied science courses in the university), and the 591 academic staff of these faculties constituted the population of the study. A total of 1031 (one thousand and thirty one) postgraduate theses was produced by the fifty teaching departments from 1967 to 1992 at both the masters and doctoral levels.

Table 3:1 Distribution of population of Academic staff in the faculties that offer Natural and Applied sciences at Ahmadu Bello University.

Faculty	Population	Percentage (%)
Agriculture	135	22.8
Engineering	82	13.8
Medicine	94	15.9
Pharmaceutical Sciences	54	9.1
Science	154	26.0
Veterinary medicine	72	12.1
Total	591	100%

Table 3:2 Distribution of population of theses by Faculties Teaching Natural and Applied science courses at Ahmadu Bello University.

	Faculty	Population	Percentage
A:	Applied Sciences	-	-
	1. Agriculture	252	24.4
	2. Engineering	231	22.4
	3. medicine	11	1.0
	4. Pharmaceutical Sciences	56	5.4
	5. Veterinary medicine	99	9.6
B.	Natural Sciences		
	1. Science	382	37.0
	Total =	1,031	100 %

3.4 The Selection of Sample

The stratified random sampling was used by the researcher in selecting a proportional sample of academic staff from each of the faculties under the study. The table for determining the sample size from a given population by Krejcie and Morgan (1970) was used by the researcher and a sample of 234 academic staff was drawn for the study.

A total of 174 academic staff constituted the sample for the five faculties that offered applied sciences while 60 academic staff was the sample drawn from the only faculty that offered natural science courses. The breakdown of the population and sample for the faculties are presented in Table 3:3 below.

Table 3.3: Distribution of the population and sample of Academic staff in the faculties that offered Natural and Applied Sciences at Ahmadu Bello University.

Faculty	Population	Sample	Percentage
A. Applied Science			
1. Agriculture	135	54	22.8
2. Engineering	82	33	13.8
3. Medicine	94	37	15.9
4. Pharmaceutical Sci.	54	22	9.1
5. Veterinary Medicine	72	28	12.1
B. Natural Science			
1. Science	154	60	26.0
Total =	591	234	100.0

3.5 Data collecting instruments

The primary sources of gathering data for the study were the documentary sources of communication which are the postgraduate theses produced by each of the fifty teaching departments under the six faculties offering natural and applied science courses at Ahmadu Bello University from 1967-1992. The researcher made use of their listings in catalogues and bibliographies in departmental and faculty libraries and the Kashim Ibrahimm Library (KIL), the main university library, and obtained the bibliographic information required for this study from each of the postgraduate thesis.

The questionnaire was the second instrument employed for this study. The rationale for using the questionnaire was that it allowed the respondents to freely express their views without inhibitions. it also ensured anonymity of the respondents.

The interview method was the third instrument used to

collect data from the respondents. The interview sessions enabled the researcher to explain and clarify issues where necessary with the respondents on the factors that were responsible for the low or high theses output by each of the fifty teaching departments that are Science and Technology based in the university. In each department, the researcher interviewed the Head of Department, a senior academic staff and the coordinator of the postgraduate programme. The interview questions covered were

(i) The name of the department and the faculty

(ii) Availability of a postgraduate programme in the department.

(iii) Factors accounting for the low or high number of theses in the department.

(iv) The availability of skilled manpower (lecturers) to teach and supervise postgraduate studies.

3.6 Validation of the instruments

The questionnaire contained sixteen items while the interview questions covered eight items which were validated by the researcher's supervisor and experts in educational administration in the university. These academic staff besides, teaching courses in their departments, supervise postgraduate students conducting research in their fields of specialization. Kerlinger (1973:457) and Gray (1976:88) consider validation of content of the research instrument by

experts as an adequate and acceptable kind of validation.

The questionnaire was pre-tested on academic staff in the faculties that are science and technology based in the university. The results obtained from the respondents was found to be satisfactory and was used in fine tuning the questionnaire.

3.7 Procedure for data collection

The researcher/research assistants went to all the fifty teaching departments under the six faculties that offered natural and applied science courses in the university, departmental and faculty libraries as well as Kashim Ibrahim Library and collected the following bibliographic information from each of the theses produced by each of these departments from 1967 to 1992 (Author and title of each thesis, type of degree (M.sc or Ph.D) department and year of award). Some of these information were also obtained from the lists of theses in catalogues in the department, departmental libraries, faculty libraries as well as Kashim Ibrahim library.

A total of 234 questionnaires were administered to the academic staff of the faculties under study. Proportional sample of respondents was determined and the following number of questionnaires were distributed among the teaching staff members of the faculties. Faculty of Agriculture 54, faculty of Engineering 33, faculty of medicine 37, faculty of pharmaceutical sciences 22, faculty of science 60, and faculty of veterinary medicine 28.

The researcher also had interview sessions of between ten and fifteen minutes with the Head of each Department, senior members of the teaching staff and the coordinator of the postgraduate programmes of each department. The interview sessions provided an opportunity for the discussion and brought to light the factors that were responsible for the low or high output of theses in each department.

3.8 Procedure for analysing data.

The researcher applied the Bradford's law of scatter (1934) in the organisation of the bibliographic information obtained from all the one thousand and thirty one postgraduate theses produced by the fifty teaching departments in the six faculties that offered natural and applied science courses between 1967 and 1992.

The teaching departments of the university that offered natural and applied science courses were arranged in order of their decreasing productivity of postgraduate theses. The department that produced the highest number of theses was listed first and the other departments were listed in the order of their decreasing productivity of theses. This was done to indicate the departments that were more productive and had produced the bulk of the postgraduate theses on natural and applied sciences in the university from 1967 to 1992.

The researcher used graphical representation (bar graphs) to show the output of postgraduate theses by the six faculties

and the fifty teaching departments that offered natural and applied science courses in the university from 1967 to 1992. To find the pattern which the data on the output of theses followed over the period of the study, three year moving averages were found to determine the pattern of distribution of the theses.

To find the moving average, the researcher first determined the moving total of the output of theses for the period of three years. The sum of the output of theses for three years is the moving total. To obtain the three year moving average, the researcher divided the moving total by by three. This method of finding moving averages was adopted from Adamu and Johnson (1985:190-120)

An example can be seen in the table below

Time	Number of Theses	Moving Total	Moving Average
1967	10	-	-
1968	15	27	9.0
1969	12	43	14.3
1970	16	51	17.0
1971	23	53	17.6
1972	14	37	12.3

The twenty six years covered by the study was first divided into three periods. The first nine years started from 1967 to 1975, the second nine years ranged from 1976 to 1984 while the last period was eight years and was from 1985 to 1992. This was done to establish the growth of the

postgraduate theses in these faculties and departments. Percentages were also used to indicate the contribution of each department and faculty to the total number of postgraduate theses on natural and applied sciences produced in the university between 1967 and 1992.

Percentages were also used to show the contribution of each of the identified factors to the low and high number of theses output by the fifty teaching departments that offered natural and applied science courses in the university in the period covered by the study.

REFERENCES

Adamu, S.O. and Johnson, T.L. (1985). Statistics for beginners. Ibadan: Evans Brothers Limited. pp 190 - 196.

Afolabi, M. (1980). "A handbook of Bradford - Zipf Bibliograph" . Department of library science, Ahmadu Bello University, Zaria. Unpublished paper.

Afolabi, M. (1993). Introduction to Research Methods for Writing Proposals, projects and theses Alpha publishers pp. 55-57.

Akoh, J.A. (1992). "An analytical Study of the postgraduate theses on Agriculutre submitted to Ahmadu Bello University, Zaria, 1979 - 1990". Unpublished (B.L.S.) final year project. Ahmadu Bello University, Zaria.

Bradford, S.C. (1934). "Sources of information on specific subjects" Engineering Vol. 137 (3558) pp.85-86).

Chen, C. (1978). Quantitative Measurement and Dynamic library service London: Greenwood press. p 11 - 1x).

Gray, L. (1976). Educational reserach competences for analysis and application" Columbia: Charles and Marril Publishing Company, p.88

Keilinger, F.N. (1973). Foundations of behavioural research New York: Holt Reinehart and Winson inc., p 457.

Krejcie, R.V. and Morgan, D. W. (1970). "Determining Sample size for research activities" Educational and psychological measurement. Col 30, pp 607 - 610

Nweke, K.M.C. (1985). "An analytical study of Ibadan library school higher degrees dissertations/theses titles" Nigerian libraries. Vol 21, (2) pp. 39-49).

Schlacter, G.A. and Thompson, D. (1974). Library Science dissertations 1925 - 1972: An annotated bibliography Colorado: libraries Unlimited. pp. 2-5.

LIBRARY

CHAPTER FOUR

ANALYSIS OF DATA AND INTERPRETATION OF FINDINGS

4.1 Introduction

The purpose of this chapter is to analyse the data and discuss the findings of the study. This study attempts to find out

(i) the productivity pattern of faculties in terms of postgraduate theses output in the six faculties offering natural and applied sciences in the university from 1967 to 1992.

(ii) the productivity pattern of departments in terms of postgraduate theses output in the fifty teaching departments offering natural and applied science courses in the university from 1967 to 1992.

(iii) the pattern of distribution of both the masters and doctoral theses output in the six faculties and the fifty teaching departments offering natural and applied sciecne courses in the university from 1967 to 1992.

(iv) the factors that were responsible for the low and high number of postgradaute theses output in the fifty teaching departments offering natural and applied science courses in the university from 1967 to 1992.

This chapter is organised according to the research questions stated earlier in chapter one. The research questions preceeds each set of results.

4.2 Data Analysis and Discussion of Findings

4.2.1 Research Question One.

What is the pattern of productivity of departments in the output of postgraduate theses on natural and applied sciences in Ahmadu Bello University from 1967 to 1992?

To find out the high and low productive departments, the researcher counted all the postgraduate theses produced by each of the fifty departments that awarded postgraduate degrees from 1967 to 1992. The counting revealed that a total of 1,031 postgradute theses were produced by the fifty teaching departments under the six faculties that offered natural and applied science courses in the university from 1967 to 1992.

It is clear from table 4.1 and fig. 4.1 below that the Department of Physics was the most productive department with 86 (or 8.34%) theses and was followed by the Department of Chemistry with 79 (or 7.66%). The Department of Agronomy with 58 (or 5.62%) was the third most productive department. The Department of Mechanical Engineering with 56 (or 5.43%) was the fourth most productive department. The Department of Crop protection with 50 (or 4.84%) and the Department of mathematics with 50 (or 4.84%) were the fifth and sixth most productive departments.

From Table 4.1 below it can be seen that the Department of Chemical pathology with 1 (0.09%) thesis, medicine with 1 (0.09%) and metallurgy with 1(or 0.09%) were the least productive departments. Twelve departments as can be seen from table 4.1 did not produce any postgraduate thesis within the period of 1967 and 1992.

Table 4:1 Productivity of Theses in Ranked Order of Departments.

	Departments	Number of Theses	Percentage
1.	Physics	86	8.34
2.	Chemistry	79	7.66
3.	Agronomy	58	5.62
4.	Mechanical Engineering	56	5.43
5.	Crop Protection	50	4.84
6.	Mathematics	50	4.84
7.	Animal Science	49	4.75
8.	Agric Economics and R/Soc.	47	4.55
9.	Geology	41	3.97
10.	Agricultural Engineering	40	3.87
11.	Biological Sciences	40	3.87
12.	Soil Science	37	3.58
13.	Biochemistry	35	3.39
14.	Microbiology	35	3.39
15.	Water Resources and Environ. Engineering	32	3.10
16	Surveying	31	3.00
17.	Veterinary Surgery and Med.	30	2.90
18.	Civil Engineering	29	2.81
19.	Electrical Engineering	27	2.61
20.	Vet. Pathology and Microbiol.	22	2.13
21.	Pharmacology and cl. Pharmacy	20	1.93
22.	Pharmaceutics and Pharm. Microbiology	18	1.74
23.	Chemical Engineering	15	1.45
24.	Geography	14	1.35
25.	Pharmaceutical and Medicinal chemistry	14	1.35
26.	Veterinary Parasitology and Entomology	14	1.35
27.	Vet. Physiology and Pharm.	12	1.16
28.	Vet. Public Health and Preventive medicine	12	1.16
29.	Plant Science	11	1.06

30.	Veterinary Anatomy	9	0.87
31.	Human Physiology	5	0.48
32.	Pharmacognosy and Drug Dev.	4	0.38
33.	Medical microbiology	2	0.19
34.	Pathology	2	0.19
35.	Textile Science and Tech.	2	0.19
36.	Chemical Pathology	1	0.09
37.	Medicine	1	0.09
38.	Metallurgy	1	0.09
39.	Anasthesia	0	0.00
40.	Community medicine	0	0.00
41.	Dentistry	0	0.00
42.	Haemathology	0	0.00
43.	Human Anatomy	0	0.00
44.	Obstetricts and Gynaecology	0	0.00
45.	Opthalmology	0	0.00
46.	Opthopaedic Surgery	0	0.00
47.	Paediatrics	0	0.00
48.	Psychiatry	0	0.00
49.	Radiology	0	0.00
50.	Surgery	0	0.00
	Total	1,031	100.00

A further revelation from table 4.1 above is that 12 departments in the faculty of Medicine did not produce any postgraduate thesis within the period covered by the study. Interviews held with some members of the faculty revealed that shortage of staff with professional experience, high turnover of teaching staff, non-availability of postgraduates programmes in some departments as well as the availability of more attractive and professionally relevant programmes such as those of the Fellowship of National Postgraduate Medical College and the West African Postgraduate Medical College which on graduation qualifies the candidate as medical consultants were some of the factors that accounted for the low productivity of theses in the faculty of medicine.

Availability of academic staff with professional experience in postgraduate research, adequate funding of the postgraduate programmes of the departments, and financial aid available to postgraduate students were identified as some of the factors that accounted for the high output of theses in the productive departments.

FIGURE 4.1 BRADFORD-ZIPF BILLIOGRAPH ON THESES PRODUCTIVITY BY THE FIFTY TEACHING DEPARTMENTS OFFERING NATURAL AND APPLIED SCIENCE COURSES IN A.B.U. 1967-1992

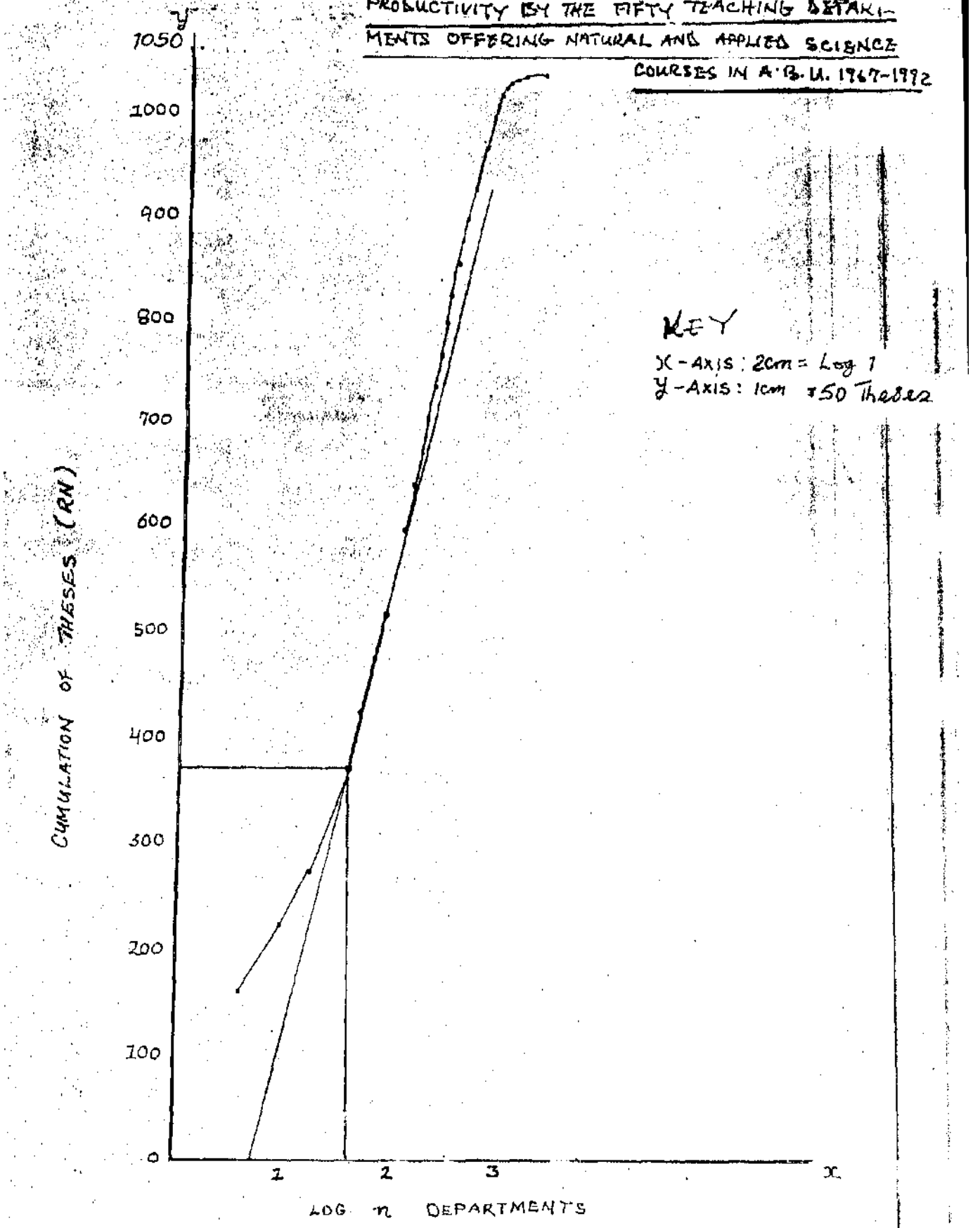


Table 4.2: Productivity of theses by the fifty teaching departments that offered natural and applied science courses in Ahmadu Bello University 1967 to 1992.

Number of theses per department A	Number of Departments B	Cumulation of Departments C	A x B D	Cumulation of theses E	Cumulative % of theses F	Logarithm G	G X 2
86	1	1	86	86	8.34	0.0000	0.000
79	1	2	79	165	16.00	0.3010	0.6020
58	1	3	58	223	21.62	0.4771	0.9542
56	1	4	56	279	27.76	0.6081	1.2162
50	2	6	100	379	36.76	0.7782	1.5564
49	1	7	49	428	41.51	0.8451	1.6902
47	1	8	47	475	46.07	0.9031	1.8062
41	1	9	41	516	50.04	0.9541	1.9082
40	2	11	80	596	57.80	1.0414	2.0828
37	1	12	37	633	61.39	1.0792	2.1584
35	2	14	70	703	68.18	1.1461	2.2922
32	1	15	32	735	71.29	1.1761	2.3522
31	1	16	31	766	74.21	1.2041	2.4082
30	1	17	30	796	77.20	1.2304	2.4604
29	1	18	29	825	80.01	1.2553	2.5106
27	1	19	27	852	82.63	1.2788	2.5576
22	1	20	22	874	84.77	1.3010	2.6020
20	1	21	20	894	86.71	1.3222	2.6444
18	1	22	18	912	88.45	1.3424	2.6898
15	1	23	15	927	89.91	1.3617	2.7234
14	3	26	42	969	93.98	1.4150	2.8300
12	2	28	24	993	96.31	1.4472	2.8944
11	1	29	11	1004	97.38	1.4624	2.9248
9	1	30	9	1013	98.25	1.4771	2.9542
5	1	31	5	1018	98.73	1.4914	2.9828
4	1	32	4	1022	99.12	1.5052	3.0104
2	3	35	6	1028	99.70	1.5441	3.0882
1	3	38	3	1031	100.00	1.5798	3.1596
0	12	50(TD)	0	1031(TT)	100.00	1.6902	3.3804

TD = Total number of departments
TT = Total number of theses produced by the 50 departments.

From the graph above in Fig 4.1 and Table 4.2, it can be established that six departments were the most productive departments in the output of postgraduate theses in the university from 1967 to 1992. These departments in ranked order of the number of theses produced are Physics Department 86 (or 8.34%) Chemistry 79(or 7.66%) Agronomy 58(or 5.62%) Mechanical Engineering 56(or 5.43%) Crop Protection 50(or 4.84%), and mathematics with 50(or 4.84%) theses, these six departments produced a total of 379 (or 36.76%) theses out of the 1,031 theses produced by all the fifty teaching departments that offered natural and applied science courses in the university from 1967 to 1992.

The graph indicates in Fig. 4.1 indicate the "Core departments" and conforms to the Bradford Zipf bibliograph. Two departments, the Department of Physics and the Department of Chemistry have produced more theses than any other department.

The graph in Fig. 4.1 shows an initial curved portion that merged into a straight line which deviates to the right showing a "Gross droop" and indicating incompletness in the data used for the study characteristic of Bradford - Zipf Bibliograph (Aiyepeku 1975: 89). It also presents the portion where the highest concentration of theses is located.

From table 4.2 it can be seen that nine departments contributed 50% of the total theses output and that 20 departments produced 84% of the theses.

4.2.2 Research Question Two

Which are the most productive faculties in the output of postgraduate hteses in the six faculties offering natural and applied science courses in the university from 1967 to 1992?

To find the most productive faculties in the output of postgraduate theses, tabular presentation of theses presentation is necessary. The data is presented in table 4.3 below.

Table 4.3: Theses productivity by the faculties that offered natural and applied sciences courses in Ahmadu Bello University 1967 to 1992.

Faculties	Period 1967 - 1975		1976 - 1984		1985 - 1992		Total	
	No of theses	%	No of theses	%	No of theses	%	Gr.Total	%
Agriculture	16	17.5	101	25.2	135	25.0	252	24.4
Engineering	40	43.9	75	18.7	116	21.5	231	22.4
Medicine	1	1.0	4	1.0	6	1.1	11	1.1
Pharmaceutical sciences	-	-	17	4.2	39	7.2	56	5.4
Science	29	31.8	148	37.0	205	38.0	382	37.1
Veterinary medicine	5	5.4	55	13.7	39	7.2	99	9.6
Total	91	100	400	100	540	100	1031	100

An examination of Table 4.3 above and Fig 4. below reveals that the Faculty of Science produced the highest number of theses with 382 (37.1%). Following the Faculty of science, was the faculty of Agriculture with 252 (24.4%) theses representing its total theses output.

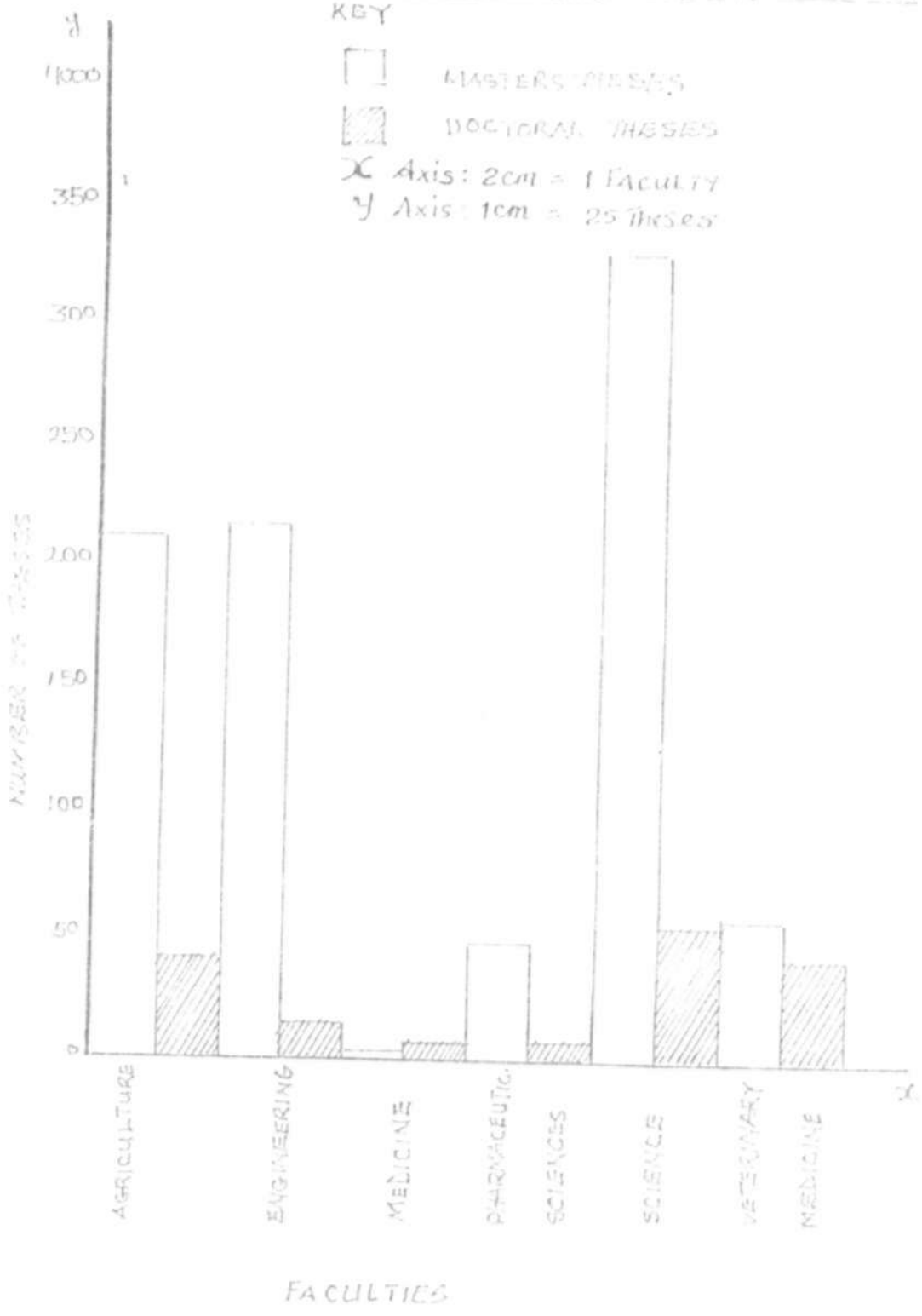
Three faculties as can be seen from Table 4.3 above did not produce theses up to 100 each. These faculties are Veterinary Medicine with 99 (9.6%) Pharmaceutical Sciences 56(5.4%) and Medicine with 11 (1.1%).These are their total output of theses produced within the period of the study. The least productive faculty was the Faculty of Medicine with 11(1.1%) as its total number of theses.

It is clear from Table 4.3 above that 91 theses were produced by the six faculties during the 1967 - 1975 period, 400 theses for the 1976 - 1984 period, representing an increase of 309 (or 304%) theses while 540 theses were produced in the 1985-1992 period, an increase of 140 (or 35%) theses over the second period of 1976-1984.

From Table 4.3 above it can be seen that the Faculty of Science produced the highest number of postgraduate theses with 382 (37.1%) Following the Faculty of Science was the Faculty of Agriculture with 252 (24.4%). The faculty of Engineering with 231 (22.4%) came third in the total output of theses in the period under study. These three faculties were some of the foundation faculties of the university and had postgraduate programmes that date back to 1966.

The Faculty of Medicine was the least productive faculty with 11 (1.1%). Though the Faculty had postgraduate programmes from its inception in 1968, it could not produce a high number of theses because most of its students prefer their professional training programmes to the master's and doctoral programmes of the faculty of medicine.

FIGURE 4-2 THESES PRODUCTIVITY BY THE SIX FACULTIES OFFERING NATURAL AND APPLIED COURSES IN THE UNIVERSITY, 1967-1972



4.2.3 Research Question Three

What is the pattern of distribution of masters and doctoral theses output in the six Faculties and the fifty teaching departments that offered natural and applied science courses in Ahmadu Bello University from 1967 to 1992?

Table 4.4: The distribution of master's theses by the six faculties that offered natural and applied sciences in the university from 1967 to 1992.

Faculty	Period					
	1967-1975		1976-1984		1985-1992		Total	
	No	%	No	%	No	%	No	%
Agriculture	14	(19.7%)	83	(25.6%)	114	(24.3%)	211	(24.4%)
Engineering	36	(50.7%)	71	(21.9%)	109	(23.2%)	216	(25.0%)
Medicine	1	(1.4%)	-	-	3	(0.6%)	4	(0.5%)
Pharm. Sci.	-	-	11	(3.4%)	37	(7.9%)	48	(5.5%)
Science	20	(28.2%)	131	(40.4%)	177	(37.7%)	328	(38.0%)
Vet. Med.	-	-	28	(8.6%)	29	(6.2%)	57	(6.6%)
Total =	71	(100%)	324	(100%)	469	(100%)	864	(100%)

Table 4.4 above clearly shows the distribution of master's theses produced by the six faculties under study. The faculty of science with 328 (38.0%) theses produced the highest number of masters theses and was followed by the /faculty of Engineering with 216 (25.0%) while the Faculty of Agriculture was third with 211 (24.4%) theses. The Faculty of Medicine with 4 (0.5%) produced the least number of master's theses during the period under study.

The Faculty of Engineering with 36(59.7%) was the most productive faculty in the 1967-1975 period. This position was taken over by the Faculty of Science in the remaining periods under study (1976 to 1992).

Master's theses on science and Technology produced by the six faculties in the twenty six years under study is seen to have grown from 71 theses in the 1967-1975 period to 469 theses in the 1985-1992 period.

Factors associated with this growth of theses could be that:

(i) During the first period 1967-1975 university education was relatively new and many persons were contented reading for their first degrees only.

(ii) many Nigerians embraced the idea of postgraduate studies in the second period 1976-1984 owing to the availability of sponsorship from both the government and the private agencies.

(iii) In the 1985 - 1992 period, there was an increassing awareness of the importance of higher degree on the the part of the individuals and the government.

Table 4.5: The distribution of doctoral theses output by the six faculties offering natural and applied Science courses in the university 1967-1992.

Faculties	Period			
	1967-1975 No %	1976-1984 No %	1985-1992 No %	Total No %
Agriculture	2(10.0%)	18 (22.6%)	21(29.6%)	41(24.5%)
Engineering	4(20.0%)	4 (5.3%)	7(9.9%)	15(9.0%)
Medicine	- -	4 (5.3%)	3(4.2%)	7(4.2%)
Pharm. Sci.	- -	6 (7.9%)	2(2.8%)	8(4.8%)
Science	9(45.0%)	17 (22.4%)	28(39.4%)	54(32.3%)
Vet. Med.	5(25.0%)	27 (35.5%)	10(14.1%)	42(25.1%)
	20(100%)	76 (100%)	71 (100%)	167 (100%)

Table 4.5 is the distribution of doctoral theses produced by the six faculties. The Faculty of Science with 54(32.3%) doctoral theses emerged as the most productive faculty in the three periods of the study. The Faculty of Veterinary Medicine was second with 42(25.1%) theses wile the Faculty of Agriculture came third with 41(24.5%) theses. The Faculty of Medicine was the least productive faculty in terms of the total output of doctoral theses in the period of the study.

The Faculty of Science was the most productive faculty in the 1967-1975 period with 9(45.0%) and also in the 1985-1992 period with 28(39.4%) doctoral theses. The faculty of veterinary medicine was the most productive faculty in the output of doctoral theses in the 1976-1984 period with 27 (35.5%).

Doctoral theses on science and technology produced by the six faculties grew from 20 in the 1967 to 1975 period to 76 in the 1976 - 1984 period, an increase of 56 theses or (280%). As can be observed in Table 4.5, the doctoral theses produced by the six faculties were 71, a decrease of 5 theses or (6.5%) from the previous period. The cause of this decline can be likened to the findings of a similar study of theses and dissertations accepted by graduate library schools in the United States of America of 1974-1975 by Tryon (1976:433) where he noted that "the number of doctoral dissertations shows a decline following years of steady and significant growth ... Simple speculations suggest that the decline not large in any event, result from changes in the availability of scholarship funds and reflects a perception of a decreasing need for doctorates..."

Research Question Four

What is the trend of distribution of postgraduate theses on natural and applied sciences in the six faculties from 1967 to 1992?.

Table 4.6: Theses productivity by Departments in the Faculty of Agriculture from 1967 to 1992.

Faculties	Period 1967 - 1975				1976 - 1984				1985 - 1992				Total					
	M.sc	Ph.D	Total	%	M.sc	Ph.D	Total	%	M.sc	Ph.D.	Total	%	M.sc	%	Ph.D	%	G.Total	%
Agric Econs and Rural Soc.	2	0	2	2.5	14	2	16	15.8	24	5	29	17.7	40	18.9	7	17.0	47	18.6
Agronomy		1	1	6.25	13	7	20	19.8	32	5	37	27.4	45	21.3	13	31.7	58	23.0
Animal Science	2	-	2	12.5	12	4	16	15.8	25	6	31	22.9	39	18.4	10	24.3	49	19.4
Crop protection	4	1	5	31.25	24	2	26	25.7	16	3	19	14.0	44	20.8	6	14.6	50	19.8
Plant Science	4	-	4	25.00	3	-	3	2.9	4	-	4	2.9	11	5.2	-	-	11	4.3
Soil Science	2	-	2	12.5	17	3	20	19.8	13	2	15	11.1	32	15.1	5	12.1	37	14.7
Total	14	2	16	100%	83	18	101	100%	114	21	135	100%	211	100%	41	100%	252	100%

From Table 4.6 above and examining the output of theses from the six departments that constitute the Faculty of Agriculture, it can be observed that there were increases in the output of theses in the departments of Agricultural Economics and Rural sociology, Agronomy and Animal Science in the period covered by the study. The increases were further noticed at both the master's and doctoral theses output except in the 1985 to 1992 period when the Department of Agronomy produced 5(1.9%) doctoral theses against 7(2.7%) it produced in the preceding period of 1976 -1984. Significant increases were recorded in the total output of theses in the second period 1976-1984 over the first period of 1967 - 1975 in the Departments of Crop Protection and Soil Science. The Department of Crop Protection produced a total of 26(10.3%) for the 1976 - 1984 period against 5(1.7%) that it produced in the 1967 - 1975 period representing an increase of 21 (8.3%) and it produced 19(7.5%) theses in the 1985 - 1992 period, a decrease of 7(2.7%) theses. The Department of Soil Science also produced 20(8.0%) theses in the second period of 1976 - 1984 against 2(0.8%) produced in the period of 1967-1975, an increase of 18(7.1%) and recorded 15(5.9%), for the last period a decrease of 5(1.9%) over the second period.

From Fig 4.3 below it can also be seen that the Department of Agronomy was the most productive department with a total of 58(23.0%) theses. It had 45 (17.8%) for its total output of theses in the period covered by the study. The least

productive departments was the Department of Plant Science which produced a total of 11(4.3%) theses.

FIGURE 4.3 : THESES PRODUCTIVITY BY THE SIX DEPARTMENTS IN THE FACULTY OF AGRICULTURE 1967 – 1992

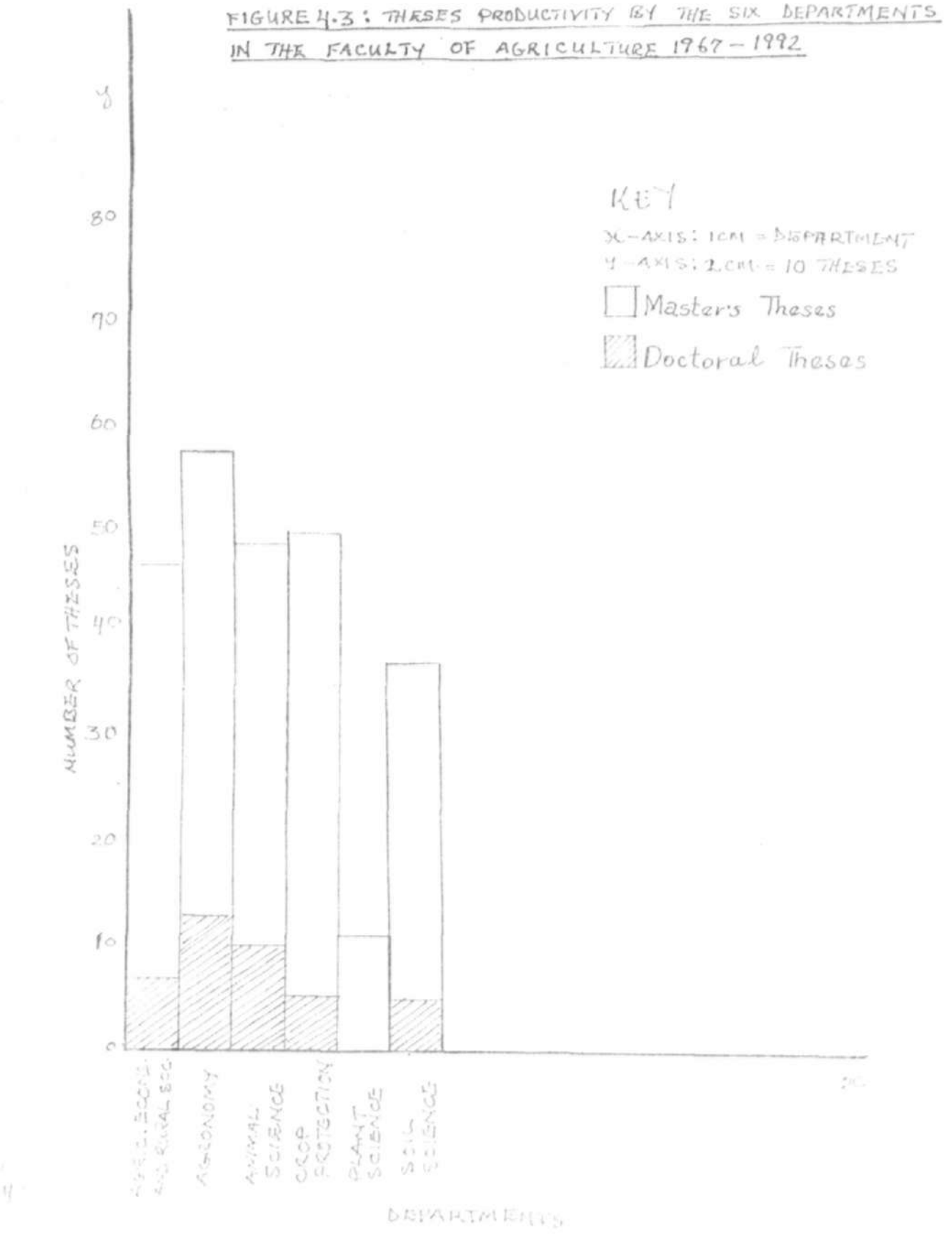


Table 4.7 Theses productivity by the departments in the Faculty of Engineering from 1967 to 1992.

	Period 1967 - 1975				1976 - 1984				1985 - 1992				Total				
Departments	M.sc	Ph.D	Total	%	M.sc	Ph.D	Total	%	M.sc	Ph.D.	Total	%	M.sc	%	Ph.D	%	Gr.Total	%
Agric Engnr.	-	-	-	-	20	-	20	16.6	17	3	20	17.2	37	17.1	3	2.0	40	17.3
Chem. Engnr.	3	-	3	7.5	2	-	2	2.6	9	1	10	8.6	14	6.4	1	6.6	15	6.4
Civil. Engnr.	12	-	12	30	8	1	9	12.00	7	1	8	6.8	27	12.5	2	13.3	29	12.5
Elect. Engnr.	13	3	16	40.0	6	-	6	8.00	5	-	5	4.3	24	11.1	3	20.0	27	11.6
Mech. Engnr	8	1	9	23.5	23	2	25	33.3	21	1	22	18.9	52	24.0	4	26.6	56	24.2
Metallurgy	-	-	-	-	-	-	-	-	1	-	1	0.8	1	0.4	-	-	1	0.4
Surveying	-	-	-	-	5	1	6	8.00	25	-	25	21.5	30	13.8	1	1.6	31	13.4
Water Resource & Envi. Engnr.	-	-	-	-	7	-	7	9.3	24	1	25	21.5	31	14.3	1	1.6	32	14.0
Total	36	4	40	100	74	4	75	100	109	7	116	100	216	100	15	100	231	100

In the Faculty of Engineering with eight departments no significant increases were observed in their output of postgraduate theses. As can be observed in Table 4.7 above, three Departments namely, Mechanical Engineering, Surveying and Water Resources and Environmental Engineering had recorded increases in their total output of theses in the period covered by the study. Though the Departments of Surveying and Water Resources and Environmental Engineering started producing postgraduate theses in the 1976 - 1984 period significant increase was noted in the last period of 1985 - 1992 in their output of theses.

An increase in the output of master's theses was recorded in the Department of chemical engineering in the last period over the first and second periods. The Departments of Mechanical Enginnering, Surveying and Water Resources and Environmental Engineering also recorded significant increases in their output of master's theses. A further examination of Table 4.7 revealed that there were decreases in the growth of doctoral theses in all the departments in the Faculty of Engineering in the period covered by the study except in the Department of Mechanical Engineering where 2(0.8%) theses were produced in the 1976 - 1984 period against 1(0.4%) produced in the first period of 1967 - 1975.

The Department of Mechanical Engineering, as can be seen in fig. 4.4 below, was the most productive department in the faculty of Engineering with a total of 56(24.2%) theses out of

which 52(22.5%) were master's theses and 4(1.7%) were doctoral theses. The Department of Agricultural Engineering was the second most productive department with 40(17.3%) as its total output of theses. The Department of metallurgy was the least productive department with 1(0.4%) as its total output of thesis. Interviews held with some academic staff of the department revealed that the Department of metallurgy had since its inception in 1982 produced postgraduate theses under the Department of Mechanical Engineering. This stopped in the 1991 1992 session, when the Department produced its first postgraduate thesis under the name of the department after establishing its postgraduate programme.

FIGURE 4·4: THESES PRODUCTIVITY BY THE EIGHT DEPARTMENTS IN THE FACULTY OF ENGINEERING 1967–1992

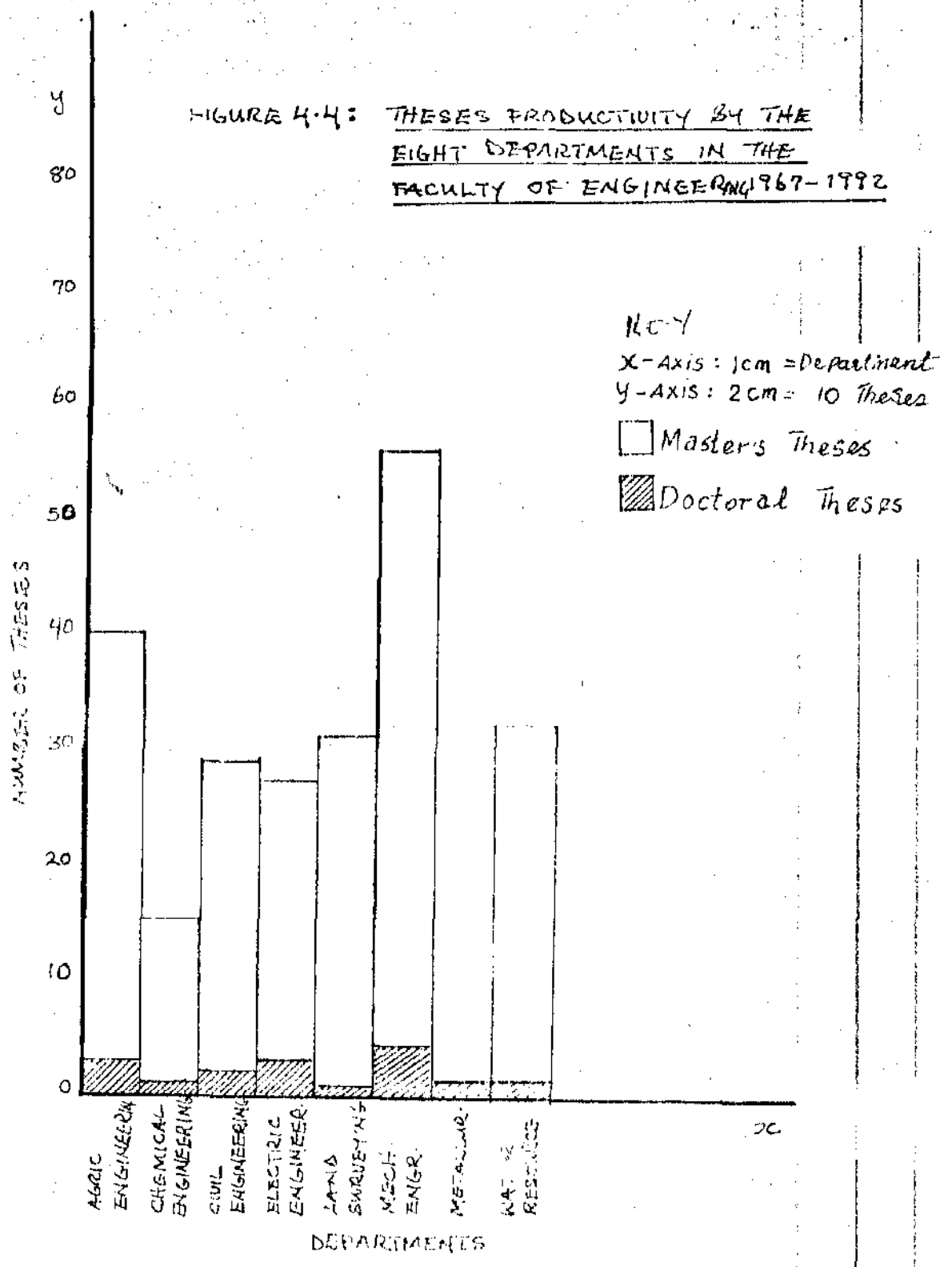


Table 4.8: Theses productivity by the Faculty of Medicine from 1967 to 1992.

	Period 1967 - 1973				1976 - 1984				1985 - 1992				Total					
Departments	M.sc	Ph.D	Total	%	M.sc	Ph.D	Total	%	M.sc	Ph.D.	Total	%	M.sc	%	Ph.D	%	Gr.Total	%
Anaesthesia.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chem. path.	-	-	-	-	-	-	-	-	-	1	1	6.6	-	-	1	14.2	1	9.1
Comm. Medicine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dentistry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heamathology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Human Anatomy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Medical Micro.	-	-	-	-	-	2	2	50.0	-	-	-	-	-	-	2	28.5	2	18.1
Medicine	-	-	-	-	-	-	-	-	-	1	1	16.6	-	-	1	14.2	1	7.1
Obsterics & Gyneacol.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Opthalmol.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Orthopaedic Surgery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paediatrics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pathology	-	-	-	-	-	-	-	-	2	-	2	33.3	2	50.0	-	-	2	18.1
Physiology	1	-	1	100	-	2	2	50.0	1	1	2	33.3	2	50.0	3	42.8	5	45.4
Phychiatry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Radiology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surgery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	-	1	100	-	4	4	100	3	3	6	100	4	100	7	100	11	100

The Faculty of Medicine with sixteen departments as observed in Table 4.8 above was the least productive among the faculties in the output of theses. Only five of its departments had produced postgraduate theses within the period covered by this study. The Department of Physiology as revealed in Table 4.8 above and Figure 4.5 below is the most productive department in the faculty. It has produced (5(45.4%) theses out of which 2 (or 18.1%) were for the master's theses while 3(or 27.3%) were for the doctoral theses.

Following the Department of Physiology were the Departments of Medical microbiology and pathology with a total output of 2(18.1%) theses each. Twelve departments were found to have produced no postgraduate thesis and no growth was recorded in the output of theses at both the master's and doctoral levels in the period covered by this study.

FIGURE 4.5 :
THESE PRODUCTIVITY BY THE SEVENTEEN DEPARTMENTS
IN THE FACULTY OF MEDICINE

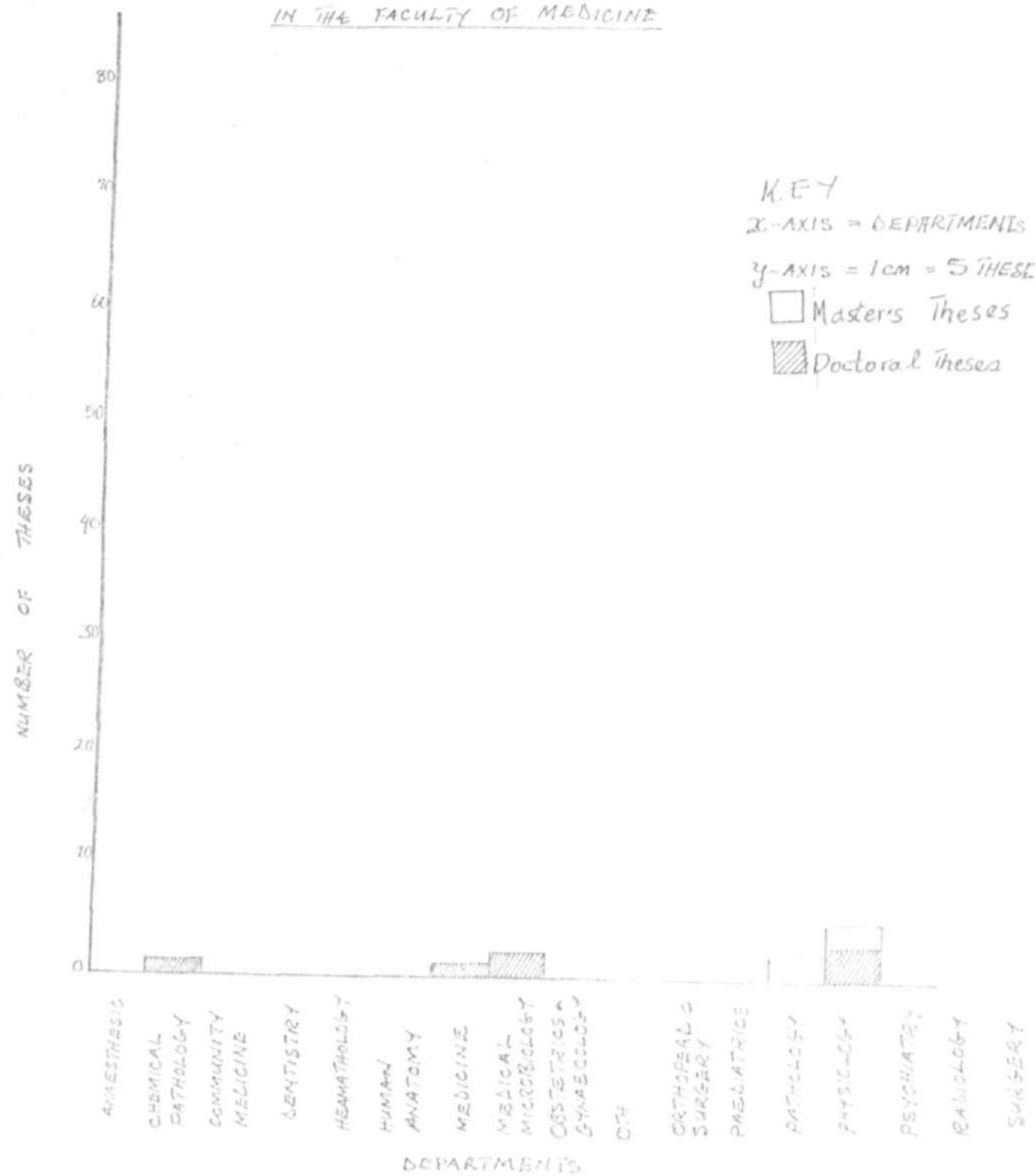


Table 4.9 Theses productivity by the Departments in the Faculty of Pharmaceutical Sciences from 1976-1992

Departments	Period 1967 - 1975				1976 - 1984				1985 - 1992				Total					
	M.sc	Ph.D	Total	%	M.sc	Ph.D	Total	%	M.sc	Ph.D.	Total	%	M.sc	%	Ph.D	%	Gr.Total	%
Pharm & Med. Chem.	-	-	-	-	3	-	3	17.6	11	-	11	28.2	14	29.2	-	-	14	25.0
Pharm & Pharm Microbiology	-	-	-	-	3	1	4	23.5	14	-	14	35.8	17	35.4	1	12.5	18	32.1
Pharmacognosy & Drug Dev.	-	-	-	-	-	1	1	5.9	3	-	3	7.7	3	62	1	12.5	4	7.1
Pharmacology & Clin. Pharm	-	-	-	-	5	4	9	52.9	9	2	11	28.2	14	29.2	6	75.0	20	35.7
Total	-	-	-	-	11	6	17	100	37	2	39	100	48	100	8	100	56	100

From table 4.9 above it could be observed that though the Faculty of Pharmaceutical sciences with four departments started producing postgraduate theses from the period 1976 - 1984, it recorded significant increases in the total output of theses in all its departments in the last period 1985-1992 over the second period of 1976 - 1984. Significant increases were noted in the output of master's theses in all the departments during the same period. A decrease in output of doctoral theses was noted in all the departments in the faculty.

The Department of Pharmacology and Clinical Pharmacy is the most productive department with 20 (35.7%) for its total output of theses, 6(10.7%) for doctoral theses and 14(25.0%) for masters theses Closely following the Department of Pharmacology and Clinical Pharmacy was the Department of Pharmaceutics and Pharmaceutical microbiology with 18(or 32.1%) theses (Fig. 4.6). The least productive department was the Department of Pharmacognosy and Drug Development which produced only 4(or 7.1%) theses at both the master's and doctoral levels during the period covered by the study.

FIGURE 4.6 THESES PRODUCTIVITY BY THE DEPARTMENTS OF FACULTY OF PHARMACEUTICAL SCIENCES

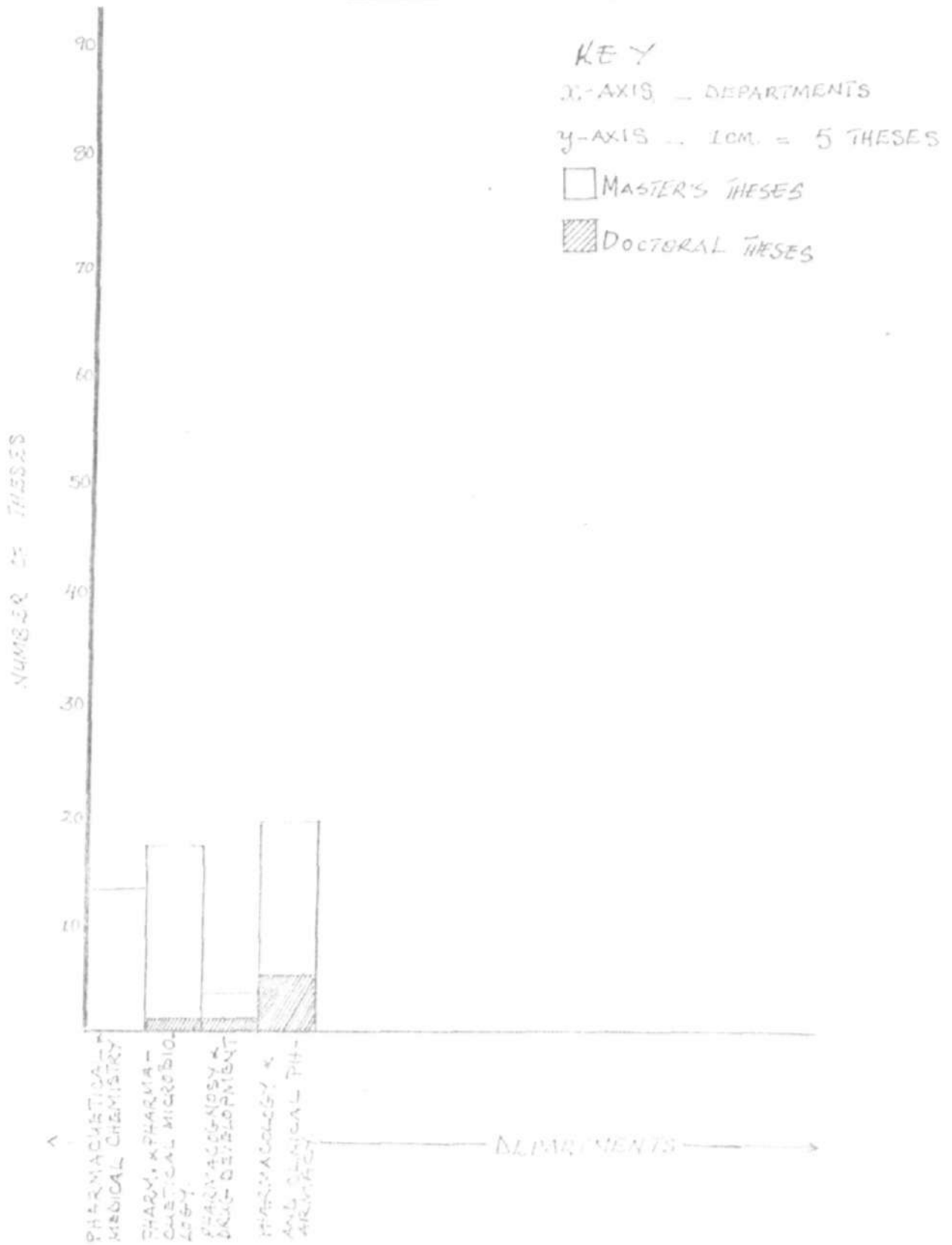


Table 4.10: Theses productivity by the Department in the Faculty of Science, 1967 - 1992.

	Period 1967 - 1975				1976 - 1984				1985 - 1992				Total				
Departments	M.sc	Ph.D	Total	%	M.sc	Ph.D	Total	%	M.sc	Ph.D.	Total	%	M.sc	%	Ph.D	%	Gr.Total %
Biochemistry	1	-	1	3.4	11	1	12	8.1	22	-	22	10.7	34	10.4	1	1.9	35 9.2
Biol. Sciences	3	1	4	13.8	19	3	22	14.9	11	3	14	6.8	33	10.0	7	13.0	40 10.5
Chemistry.	6	5	11	37.9	36	1	37	25.0	25	6	31	15.1	67	20.4	12	22.2	79 20.6
Geography.	1	1	2	6.9	2	1	3	2.0	7	2	9	4.4	10	3.0	4	7.4	14 3.7
Geology	1		1	3.4	11	-	11	7.4	27	2	29	14.1	39	11.9	2	3.7	41 10.7
Mathematics	4	1	5	17.2	15	2	17	11.5	24	4	28	13.6	43	13.1	7	13.0	50 13.1
Microbiology	1	-	1	3.4	10	2	12	8.1	14	8	22	11.0	25	7.6	10	18.5	35 9.2
Physics	3	1	4	13.8	27	7	34	23.0	45	3	48	23.4	75	31.5	11	20.3	86 22.5
Textile Sci & Technology	-	-	-	-	-	-	-	-	2	-	2	1.0	2	0.6	-	-	2 0.5
Total	20	9	29	100	131	17	148	100	177	28	205	100	328	100	54	100	282 100

The Faculty of Science which has nine departments as revealed by Table 4.10 above recorded increases in the total output of theses in all its departments for all the periods except in the Departments of Biological sciences and chemistry where there were decreases in their output of theses in the last period against what they produced in the second period. Significant increases in the output of master's theses were noted in all the departments except in the Department of Textile Science and Technology which started producing postgraduate theses in the 1985-1992 period.

An increase in the output of doctoral theses was observed in the second period over the first in the Departments of Biological sciences, Mathematics, Physics and Microbiology, and in the third period over the second in the Department of Chemistry, Geography, Geology, Mathematics and microbiology. A decline in the output of doctoral theses was recorded in the Department of chemistry in the second period over the first and in the Department of Physics which produced a total of 3(0.8%) in the last period of 1985-1982 against 7(1.8%) in the second period of 1976 - 1984, representing a decrease of 4(1.0%) theses. No doctoral thesis was produced by the Department of Textile Science and Technology in the period covered by the study.

The Department of Physics was the most productive department in the Faculty and from Fig.4.7 below it produced a total of 86(22.5%) theses with 75(or 19.6%) for the [illegible]'s

theses and 11(or 2.9%) for the doctoral theses. Closely following the Department of Physics was the Department of Chemistry with a total output of 79(or 20.6%) theses and produced the highest number of doctoral theses of 12(12.2%) out of the total number of 54 doctoral theses produced by the nine departments in the Faculty in the period cov[illegible]by the study.

Textile Science and Technology which produced 2(0.5%) theses was the least productive department in the Faculty of sc[illegible]

FIGURE 4·7 : THESES PRODUCTIVITY BY THE NINE DEPARTMENTS IN THE FACULTY OF SCIENCE

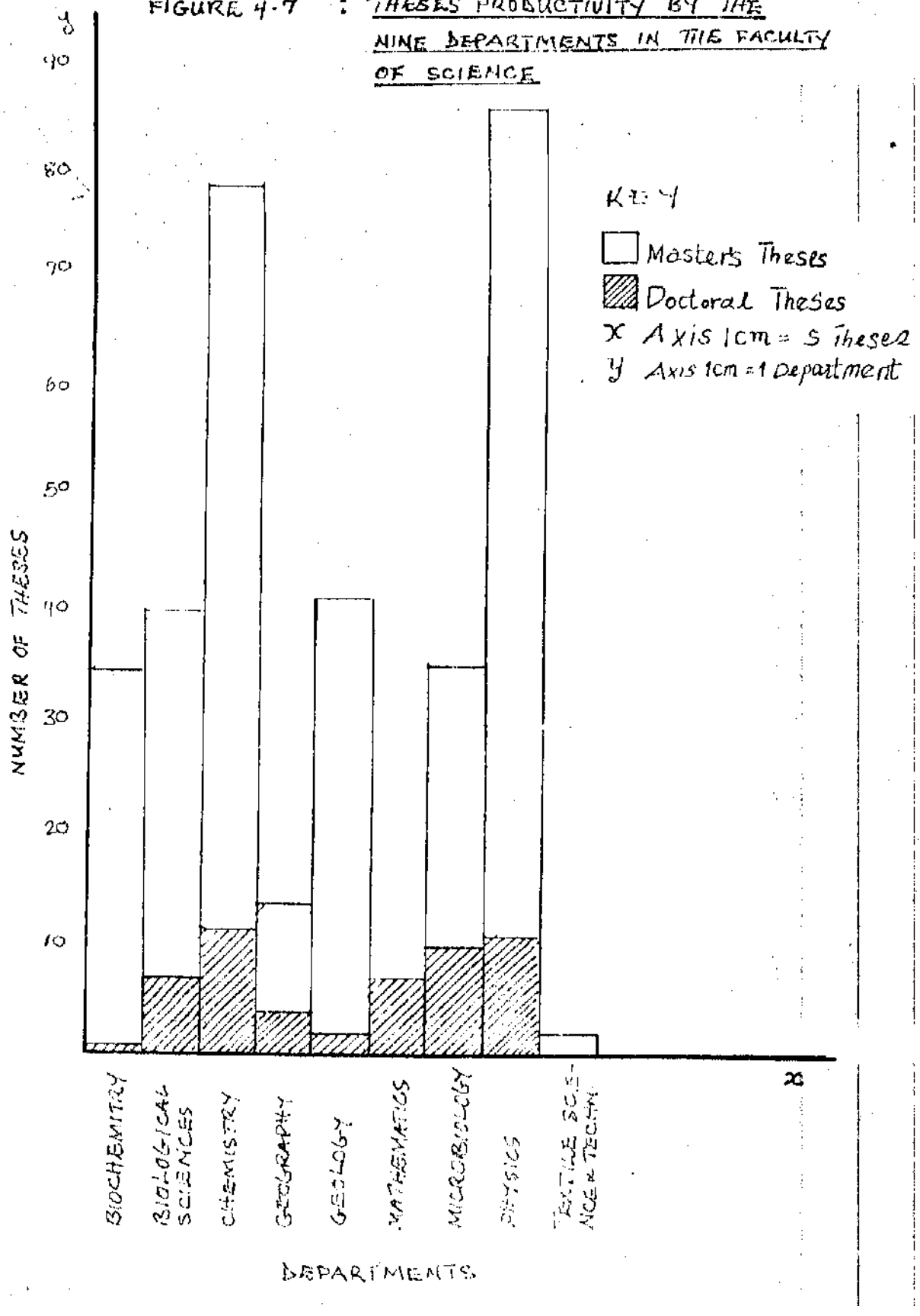


Table 4.11: Theses productivity by Departments in the Faculty of Veterinary Medicine 1967-1992

	Period 1967 - 1975				1976 - 1984				1985 - 1992				Total				
Departments	M.sc	Ph.D	Total	%	M.sc	Ph.D	Total	%	M.sc	Ph.D.	Total	%	M.sc	%	Ph.D	%	Gr.Total	%
Vet. Anatomy	-	-	-	-	2	5	7	12.6	1	1	2	5.1	3	5.3	6	14.3	9	9.1
Vet Parasit. and Entomol.	-	1	1	20.0	3	4	7	12.6	5	1	6	15.4	8	14.0	6	14.3	14	14.1
Vet. Pathology & Microbiol.	-	3	3	60.0	3	3	6	11.0	11	2	13	33.3	14	24.6	8	19.0	22	22.2
Vet Physiol. & Pharmacology .	-	-	-	-	3	4	7	12.6	3	2	5	12.8	6	10.5	6	14.3	12	12.1
Vet Public Health & Prev.	-	1	1	20.0	4	1	5	9.1	3	3	6	15.4	7	12.3	5	11.9	12	12.1
Vet Surg. & Medicine	-	-	-	-	13	10	23	42.0	6	1	7	17.9	19	33.3	11	26.2	30	30.3
Total	-	5	5	100	28	27	8	100	29	10	39	100	57	100	42	100	99	100

An examination of Table 4.11 reveals that the Faculty of Veterinary Medicine with six departments only recorded increases in the output of theses in the second period of 1976-1974 over the first period of 1967-1975 in the total output of theses in all its department. In the third period of 1985-1992 over the second period in the Departments of Veterinary pathology and Microbiology and Veterinary Public Health and preventive Medicine recorded increases in their theses output.

The Department of Veterinary Pathology and Microbiology had an increase in its output of master's theses in the third period of 1985-1992 with 11(11.1%) against 3(3.0%) theses that it produced in the preceeding period of 1976-1984.

No significant increase in doctoral theses was observed in the departments that constitute the Faculty except in the Department of Veterinary Parasitology and Entomology in the second period over the first. The Department of Veterinary Public Health and Preventive Medicine in the third period of 1985-1992, produced 3(3.0%) theses as against 1(or 1.0%) that was produced in the first and second periods.

The Department of Veterinary Surgery and Medicine which produced a total of 30(or 30.3%) theses with 19(or 19.2%) for master's theses and 11(or 11.1%) for doctoral theses was the most productive department in the faculty. Following the Department of Veterinary Surgery and Medicine was the Department of Veterinary Pathology and Microbiology which

produced a total of 22(or 22.2%) theses with 14(or 14.1%) for the master's theses and 8 (or 8.1%) for the doctoral theses. The Department of Veterinary Anatomy was the [illegible] productive department in the Faculty and as can be seen in Fig. 4.8, it only produced 9(or 9.1%) theses with 3(or 3.0%) for the master's and 6(6.1%) for the doctoral theses.

FIGURE 4·8 : THESES PRODUCTIVITY BY THE SIX DEPARTMENT IN THE FACULTY OF VETERINARY MEDICINE 1967 – 1992

KEY
X-Axis : 1cm = 1 Department
Y-Axis : 1cm = 5 Theses
□ Masters Theses
▨ Doctoral Theses

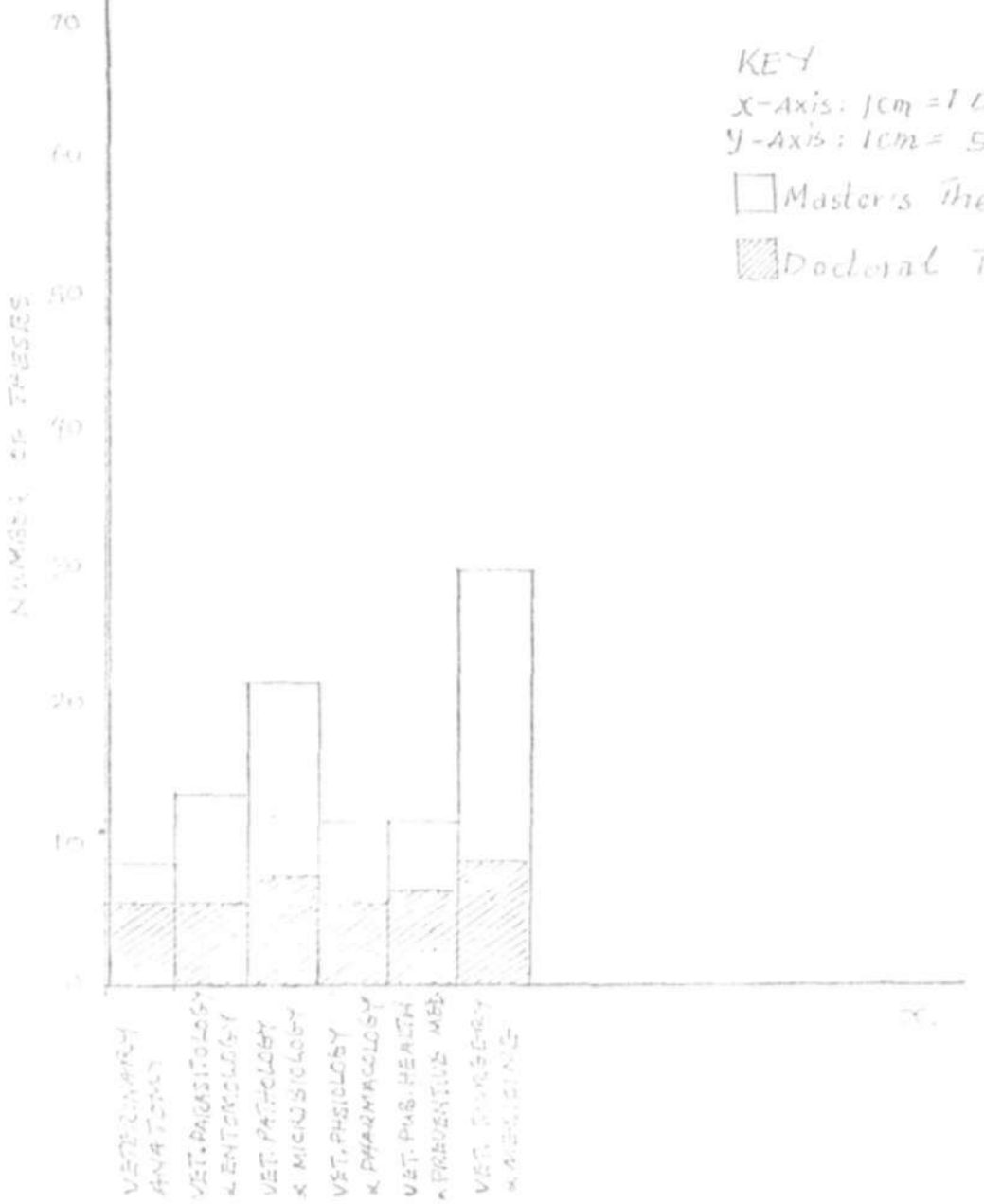


Table 4.12: The distribution of theses in the six faculties showing the number of theses produced each year, the moving total and the moving average

	FACULTIES																							
	Agriculture			Engineering			Medicine			Pharm Sciences			Science			Vet Medicine			Total		
TIME	No of theses	M.T	M.A	Theses	MT	M A	Theses	M T	M A	Theses	M T	M A	Theses	M T	M A	Theses	M T	M A	GM	GMT	GMA
1967	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-			1		
1968	4	4	.3	4	11	3.6	-	-	-	-	-	-	5	7	2.3	-			13	22	7.3
1969	-	5	1.6	7	20	6.6	-	-	-	-	-	-	1	8	2.6				8	33	11.0
1970	1	1	0.3	9	21	7.0	-	-	-	-	-	-	2	10	3.3	-			12	32	10.6
1971	-	3	1.0	5	16	5.5	-	-	-	-	-	-	7	10	3.3	-			12	29	9.6
1972	2	4	1.3	2	11	3.6	-	-	-	-	-	-	1	13	4.3	-			5	29	9.6
1973	2	8	2.6	4	9	3.0	-	-	-	-	-	-	5	9	2.0	1	3	1.0	12	29	9.6
1974	4	9	3.0	3	14	4.6	-	-	-	-	-	-	3	13	4.3	2	5	1.6	12	41	13.6
1975	3	14	4.6	7	12	4.0	-	-	-	-	-	-	5	21	7.0	2	13	4.3	17	61	20.3
1976	7	17	5.6	2	12	4.0	1	1	0.3	-	-	-	13	35	11.6	9	17	5.6	32	82	27.3
1977	7	18	6.0	3	0	2.6	-	1	0.3	-	-	-	17	48	16.0	6	20	6.6	33	95	31.6
1978	4	22	7.3	3	8	2.6	-	1	0.3	-	-	-	18	43	14.3	5	14	4.6	30	90	30.0
1979	11	26	8.6	2	16	5.3	1	2	0.6	2	5	1.6	8	32	10.6	3	10	3.3	27	91	30.3
1980	11	34	11.3	11	21	7.0	1	2	0.6	3	6	2.0	6	22	7.3	2	9	3.0	34	94	31.3
1981	12	40	4.0	8	33	11.0	-	2	0.6	1	7	2.3	8	24	8.0	4	15	5.0	33	121	40.3
1982	17	49	16.3	14	39	13.0	1	1	0.3	3	7	2.3	10	54	18.0	9	21	7.0	54	171	57.0
1983	20	49	16.3	17	44	14.6	-	2	0.6	3	11	3.6	36	78	26.0	8	25	8.3	84	209	69.6
1984	12	56	18.6	13	40	13.3	1	1	0.3	5	16	5.3	32	92	30.6	8	22	7.3	71	227	75.6
1985	24	59	19.6	10	46	15.3	-	1	0.3	8	21	7.0	24	86	28.6	6	19	6.3	72	232	77.3
1986	23	74	24.6	23	54	18.0	-	2	0.6	8	19	6.3	30	102	34.0	9	20	6.6	89	271	90.3
1987	27	67	23.3	21	55	18.3	2	2	0.6	3	18	6.3	48	108	36.0	9	21	7.0	110	271	90.3
1988	17	60	20.0	11	46	15.3	-	2	0.6	7	12	4.0	30	96	32.0	7	21	7.0	72	237	79.0

10/(B)

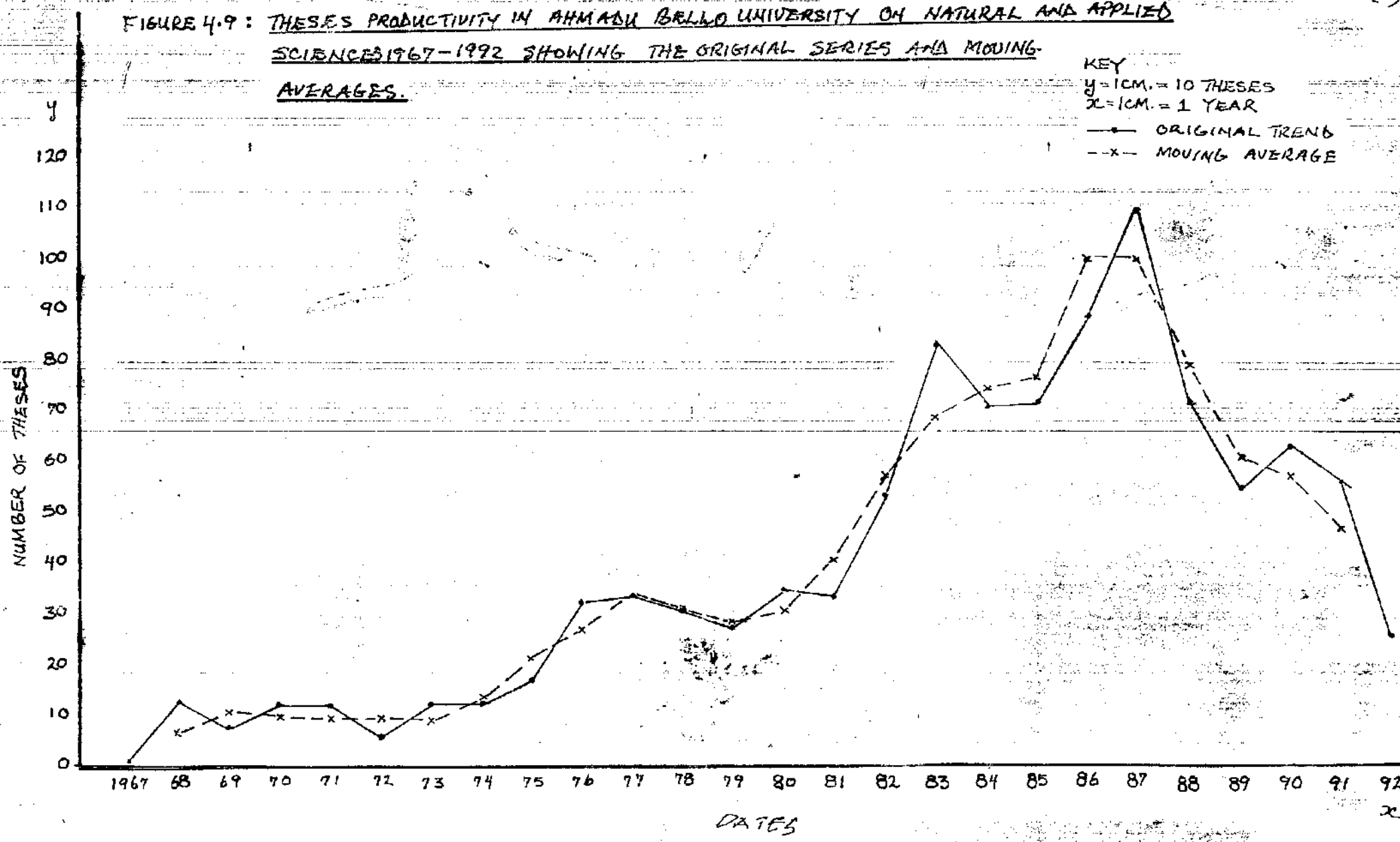
1989	16	48	16.0	14	43	14.5	-	-	-	2	12	4.0	18	71	23.6	5	16	5.3	55	190	63.3
1990	15	43	14.0	18	42	14.0	-	-	-	3	7	2.3	23	65	21.6	4	13	4.3	63	172	57.3
1991	12	28	9.3	10	38	12.6	2	4	1.3	2	11	3.6	24	57	19.0	4	8	2.6	54	143	47.7
1992	1			10			2			6			7			-			26		
Total	252			231			11			56			382			99			1031		

Key

M.T = moving total
M.A = moving average
G.M.T = Grand moving total
G.M.A = Grand moving average
G.T. = Grand total.

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FIGURE 4.9 : THESES PRODUCTIVITY IN AHMADU BELLO UNIVERSITY ON NATURAL AND APPLIED SCIENCES 1967–1992 SHOWING THE ORIGINAL SERIES AND MOVING-AVERAGES.



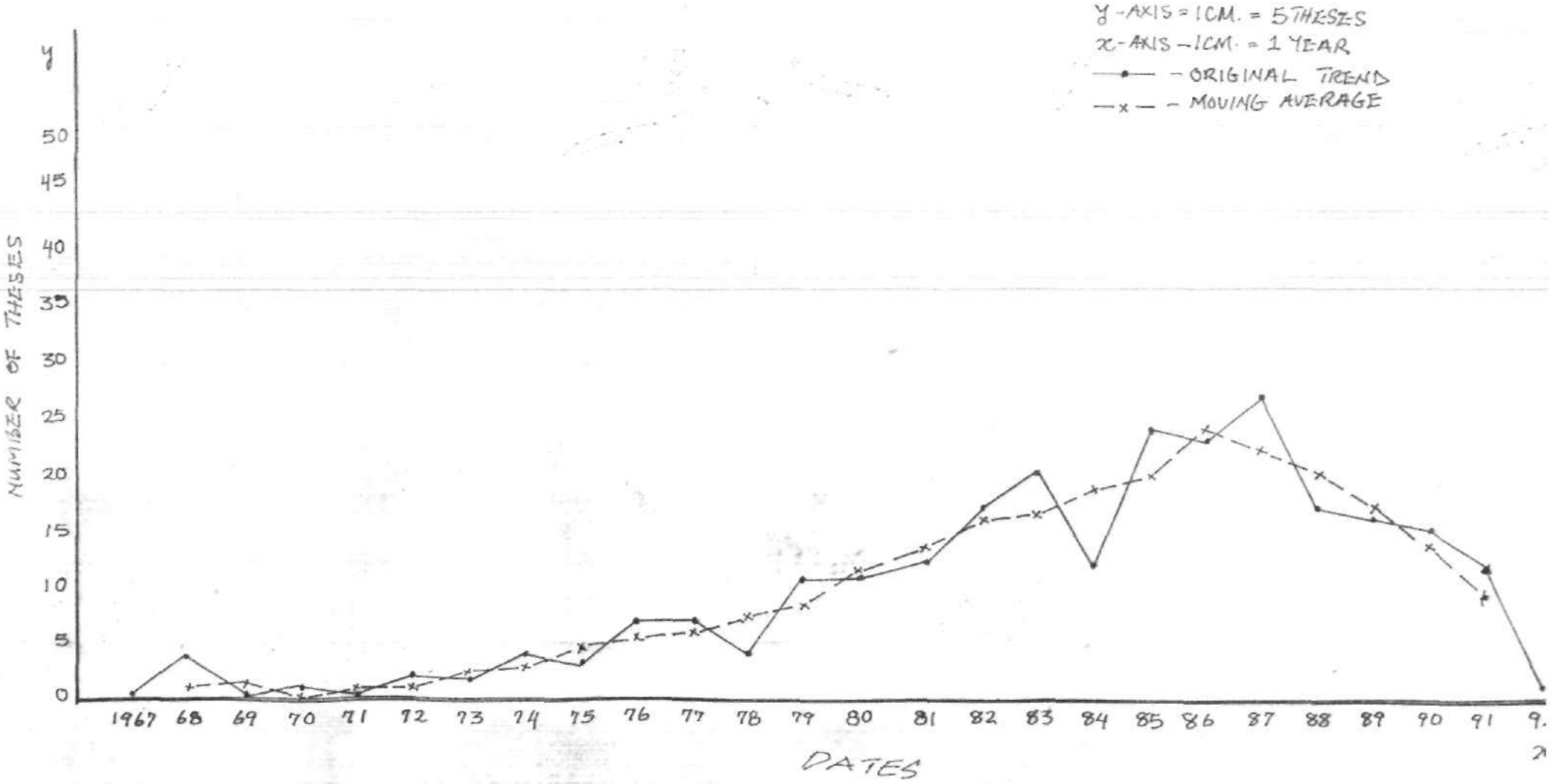
An examination of figure 4.9 above reveals that theses productivity on Science and Technology in Ahmadu Bello University was generally low from 1967 to 1975. There was a slight increase in 1976 when 32 theses were produced against 17 that was produced in 1975. This increase was just for two years, 1976 and 1977. Significant increase in the output of theses was recorded in 1982, 1983, 1986 and 1987.

From 4.9, it could be seen that 1987 was the year that recorded the highest output of theses on Science and Technology in the university. Between 1992 and 1987 there was favourabble academic environment for postgraduate studies demonstrated by adequte library provisions, stable academic programes as well as the availability of teachers who were commited to teaching and research.

Though the year 1987 witnessed a religious crisis in the university, it was the peak period of theses output on science and technology. The year recorded an output of 110 theses.

After 1987, there was a downward decline in the output of theses for 1988 and the remaining years up to 1992 when only 26 theses were produced.

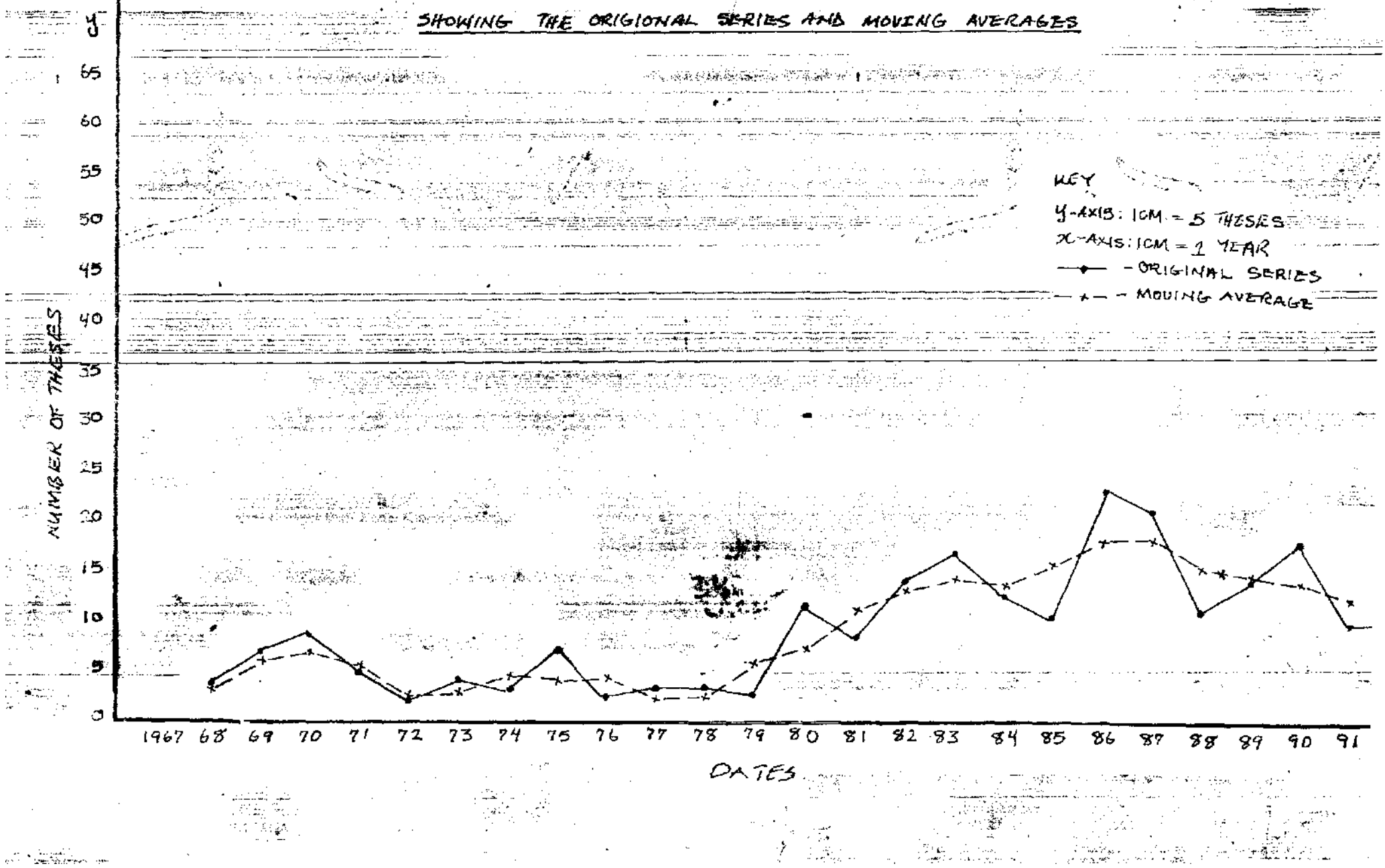
FIGURE 4.10: THESES PRODUCTIVITY BY THE FACULTY OF AGRICULTURE 1967-1992 SHOWING THE ORIGINAL TREND AND MOVING AVERAGES



An examination of Figure 4.10 above shows that there was a y increase in the output of theses in the Faculty of Agriculture from 1972 to 1977, and 1981 to 1983, while there were sharp decline in the output of theses in 1978 and 1984. The Faculty recorded its highest output of theses in 1987 when 27 theses were produced. A sudden and sustained decline in the output of theses could be observed from 1988 to 1992.

FIGURE 4·11 : THESES PRODUCTIVITY BY THE FACULTY OF ENGINEERING 1967- 1992

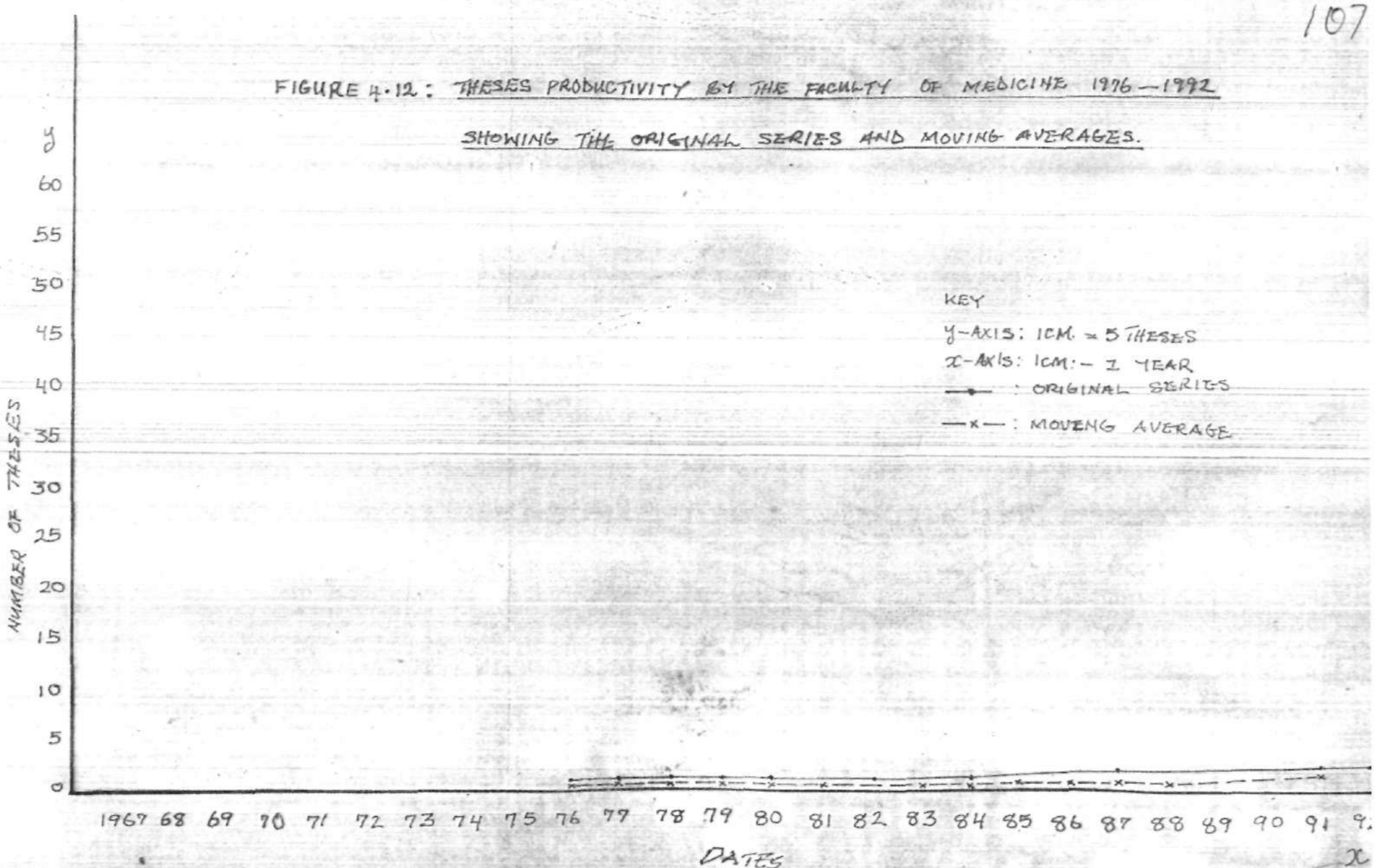
SHOWING THE ORIGIONAL SERIES AND MOVING AVERAGES



An examination of Fig.4.11 reveals a series of fluctuations in the output of theses from the Faculty of Engineering. From 1967 to 1979 the yearly output of thesees had remained below 10. By 1980 11 theses was produced. The year 1986 marked the year that recorded the highest output of theses with 23 theses. Theses production in the faculty followed the general pattern of decline in the last two years.

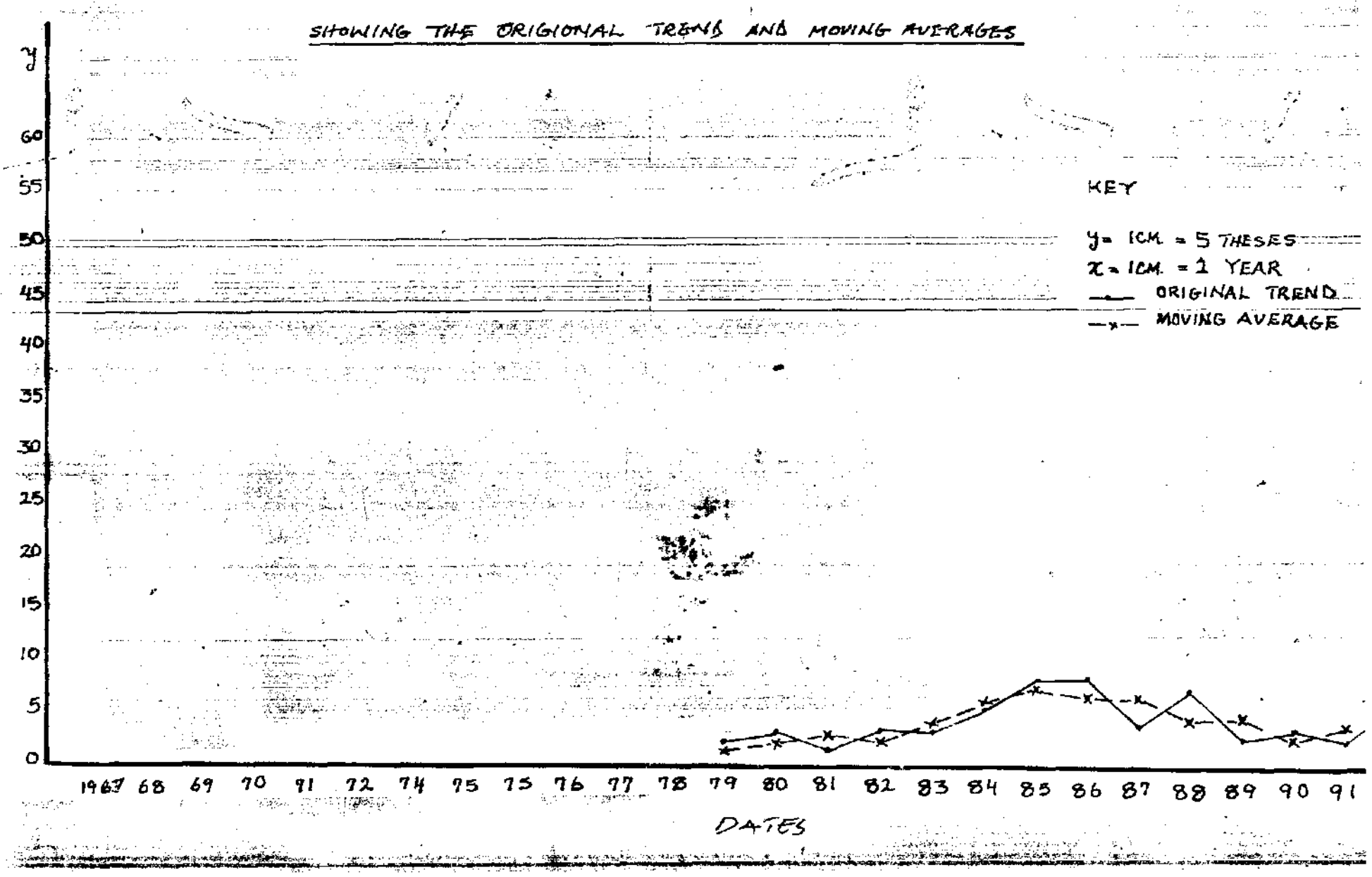
FIGURE 4.12: THESES PRODUCTIVITY BY THE FACULTY OF MEDICINE 1976–1992

SHOWING THE ORIGINAL SERIES AND MOVING AVERAGES.



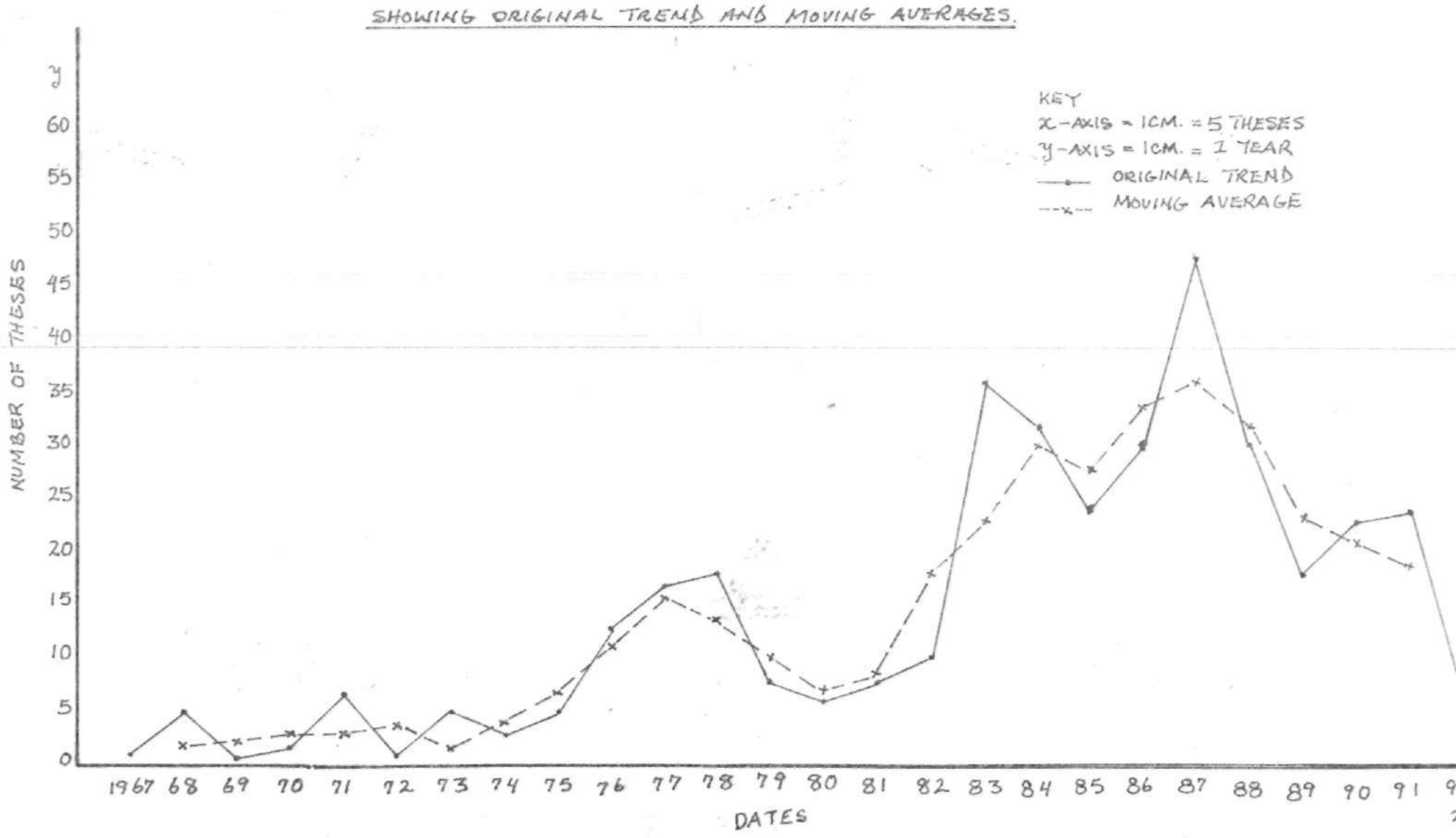
An examination of Fig 4.12 shows that the productivity of postgraduate theses by the faculty was generally low throughout the whole period.

FIGURE 4·13: THESES PRODUCTIVITY BY THE FACULTY OF PHARMACEUTICAL SCIENCES 1979-1992 SHOWING THE ORIGIONAL TRENS AND MOVING AVERAGES



An examination of Fig 4.13 reveals that the productivity of theses was generally low in the Faculty of Pharmaceutical Sciences. Theses output was at its peak in 1985 and 1986, though a decline in theses output was noticed in 1989 to 1991 the last year 1992 witnessed an increase in the number of theses produced in the faculty.

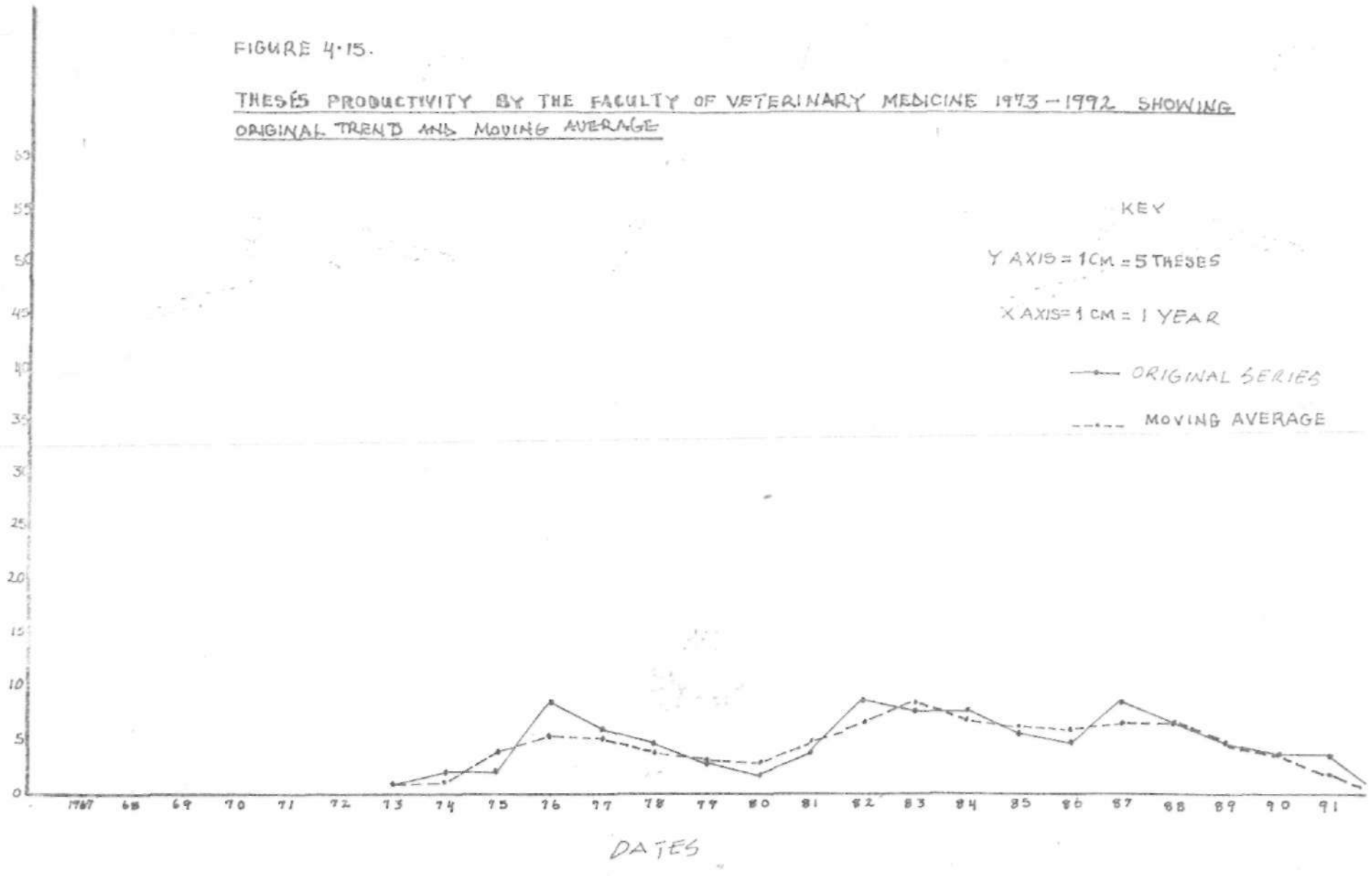
FIGURE 4·14: THESES PRODUCTIVITY BY THE FACULTY OF SCIENCES 1967–1992 SHOWING ORIGINAL TREND AND MOVING AVERAGES.



- An examination of figure 4.14 reveals that the productivity of theses was low from 1987 to 1975, it recorded an increase from 1976 to 1978, a sudden decline could be noticed from 1979 to 1982. Significant increase can be observed in 1983 and 1987 when theses productivity was at its peak in the faculty of science. A decline in theses productivity is also noted towards the last five years of the study.

FIGURE 4·15.

THESES PRODUCTIVITY BY THE FACULTY OF VETERINARY MEDICINE 1973 – 1992 SHOWING ORIGINAL TREND AND MOVING AVERAGE



An examination of Fig.4.15 above reveals a general low productivity of theses. The pattern of productivity shows a downward decline towards the last four years of the study.

Theses productivity reached its peak in 1976, 1982, 1983 and 1987.

4.3 Research Question Five

What factors were responsible for the low and high number of theses output by the fifty teaching departments offering natural and applied science courses from 1967 to 1992 in the university?

To find out the factors responsible for the low and high number of theses output, Two hundred and thirty four (234) questionnaires were distributed to some teaching staff members in the fifty teaching departments that offered natural and applied science courses in the university. Two hundred and five or (87.6%) questionnaires were completed and returned while 197 representing 84.1% were found usable. The questionnaires were analysed and the results were presented in tabular forms and expressed in percentages.

Interviews were conducted among a number of experienced teaching staff members of each department. The responses from all the respondents were grouped into two broad areas of natural science and applied science. The responses from the teaching staff members in the departments under the Faculty of science constitutes the natural science while the responses from the teaching staff members in the departments under the

faculties of Agriculture, Engineering, Medicine, p[illegible]eutical sciences and Veter[illegible] medicine were all grouped under the applied sciences.

Table 4.13: Factors that contributed to the high output of theses in the Departments offering natural and applied science courses in the university from 1967 to 1992

DESCRIPTION	FACULTY	NO. EFFECT	%	LITTLE EFFECT	%	GREAT EFFECT	%	TOTAL NO.	%
Adeequate library collection in terms of books and journals	Nat. Science	1	0.5	5	2.5	13	6.6	18	9.1
	Appl. Science	7	3.5	11	5.6	24	12.2	42	21.2
	Total	8	4.0	16	8.1	37	18.8	60	30.4
Availability of academic staff with requisite knowledge to handle post-graduates programm	Nat. Science	-	-	2	1.0	16	8.1	18	9.1
	Appl. Science	3	1.8	13	6.6	26	13.2	42	21.3
	Total	3	1.5	15	7.6	42	21.3	60	30.4
An encouraging funding of the postgraduate studies of your department	Nat. Science	9	4.6	5	2.5	4	2.0	18	9.1
	Appl. Science	23	11.6	13	6.6	6	3.0	42	21.8
	Total	32	16.2	18	9.1	10	5.1	60	30.4
The quality and hardwork of the postgraduate students in your department	Applied Science	1	0.5	2	1.0	15	7.6	18	9.1
	Appl. Science	2	1.0	12	6.1	28	14.2	42	21.3
	Total	3	1.5	14	7.1	43	21.8	60	30.4

The 60 (30.4%) respondents, 18(9.1%) from the faculty of science and 42 (or 21.3%) from the faculties under the applied sciences that indicated high output of theses from their departments were asked to indentify the factors that contributed to high output of theses. The respondents were also required to show the degree of effect of each of these factors on the high output of theses from their departments.

As can be seen from table 4.13 above 43 (or 21.8%) of the respondents stated that the quality and hardwork of the postgraduate students had great efect, 14(or 7.5%) stated that it had little effect while 3 (or 1.5%) indicated that it had no effect. With regards to availability of academic staff to handle postgraduate programmes 42(or 21.3%) respondents showed that it had great effect, 15(or 7.6%) stated that it had little effect while 3(1.5%) stated that it had no effect.

From the data presented in Table 4.13 above it can also be seen that the quality and hardwork of the postgraduate students in the departments recorded the highest number of respondents that indicated that it had great effect. This represented 43(or 21.8%) respondents that reported that their departments had high output of theses. Following this factor was availability of academic staff with requisite knowledge to handle postgraduate programmes, in which 42(or 21.3%) of the respondents mentioned that it had great effect. The factor that made the least contribution to the high output of theses in the departments that offered natural science or applied

science courses was an encouraging funding of the postgraduate studies of these departments. The finding of this study is not similar to that of Ifidion (1978:309) who stated that periodical publications had the most significant effect on the production of higher degrees. According to him, books were next to periodicals while teaching staff made the least contribution. He further explained that posgraduate student were more self reliant and require less guidance from the teaching staff.

From the interviews conducted among the academic staff of these departments the majority of them indicated that their departments were yet to achieve a high output of postgraduate theses. The few that agreed to have recorded high output of theses in the departments mentioned that the quality of the postgraduate students enrolled for postgraduate programes in their departments and the motivation of these students by the academic staff were the two major countributors to the factors that enabled their departments to acheive high output of postgraduate theses from 1967 to 1992.

Table 4.14: Factors that contributed to the low output of theses in the Departments offering natural and applied science courses in the university from 1967 to 1992

FACTORS	FACULTY	NO. EFFECT	%	LITTLE EFFECT	%	MODERATE EFFECT	%	GREAT EFFECT	%	TOTAL NO.	%
Inability of post graduate students to finance their postgraduate studies	Nat. Science	3	1.5	12	6.1	16	8.1	2	1.0	33	16.7
	Appl. Science	11	5.6	34	17.2	38	19.3	21	10.6	104	52.8
	Total	14	7.1	46	23.3	54	27.4	23	11.6	137	69.5
Non Availability/ inadequacy of relevant library materials books and journals in the library to support the student in writing their theses	Nat. Science	2	1.0	6	3.0	9	4.5	16	8.1	33	16.7
	Appl. Science	5	2.5	12	6.1	24	12.2	63	32.0	104	52.8
	Total	7	3.5	18	9.1	33	16.7	79	40.1	137	69.5
Lack of or inadequacy of academic staff to teach and supervise the postgraduate students	Nat. Science	3	1.5	5	2.5	11	5.6	14	7.1	33	16.7
	Appl. Science	4	2.0	13	6.8	38	19.3	49	24.9	104	52.8
	Total	7	3.5	18	9.1	49	24.9	63	32.0	137	69.5
Inadequate building of the postgraduate programmes of your department	Applied Science	-	-	3	1.5	11	5.6	19	9.6	33	16.7
	Appl. Science	2	1.0	10	5.1	35	17.7	57	28.4	104	52.2
	Total	2	1.0	13	6.6	46	23.3	76	38.5	1,37	69.5

The 137 (69.5%) respondents, 33(16.7%) from the Faculty of science and 104(52.8%) from the faculties under the applied sciences that indicated that their departments recorded low output of theses, ranked the above factors and showed the effect of each of them on the low output of theses in the departments.

From the data presented in Table 4.14 above, it can be seen that non availability/inadequacy of relevant library materials (books and journals) in the library to support the postgraduate students in writing their theses was the factor that recorded the highest number of respondents that indicated that it had great effect with 79 (or 40.1%). 33 (or 16.7%) agreed that it had moderate effect 18(or 9.1%) reported that it had little effect while 7(or 3.5%) mentioned that it had no effect. Following the above factor was inadequate funding of the postgraduate programmes of these departments in which 76 (or 38.5%) indicated that it had great effect, 46 (or 23.3%) noted that it had moderate effect, 13(or 6.6%) mentioned that it had little effect while 2(or 1.0%) indicated that it had no effect.

The finding above is similar to that of Downs (1966:127) on the study of library resources of American universities and colleges which offered doctorate degrees between 1957 and 1966. He discovered that out of the 121, 750 doctorate degrees granted by the one hundred and twenty institutioins during the decade 77, 465 (or 64%) come from thirty eight institutions

with library holdings in excess of a million volumes each.

From the interviews conducted, the academic staff of these departments reported that non-availability/inadequacy of relevant library materials to support the postgraduate students in writing their theses as well as inadequate funding of postgraduate programmes have been the bane of the growth of higher studies in the university. Some of these academic staff indentified the lack of equipment and chemicals in their laboratories and workshops as one of the factors that militated against the growth of their departments in terms of the number of postgraduate candidates that they enrolled and the number that successfully completed their programmes.

Table 4.15: Availability of Departmental or Faculty Libraries for the use of Postgraduate students.

Category	Yes	%	No	%	Total No	%
Natural Science	51	25.9	-	-	51	25.9
Applied Science	146	74.1	-	-	146	74.1
Total	197	100	-	-	197	100

The respondents were asked to indicate yes if they had departmental or faculty library for the use of their students and no if they had no departmental/faculty library. From the data presented in Table 4.15, it can be seen that there were either departmental or faculty libraries or a combination of these libraries in all the faculties offering science or applied science courses in the university.

Table 4.16: Availability of current as well as adequate books and journals in the Faculty and Departmental libraries to support the postgraduate students in writing their theses.

Category	Yes	%	No	%	Total No	%
Natural Science	8	4.1	43	21.8	51	25.9
Applied Science	14	7.1	132	67.0	146	74.1
Total	22	11.2	175	88.8	197	100

The respondents were asked to state whether they had current as well as adequate books in their departmental or faculty libraries and their responses were presentedin Table 4.16 above. From the data presented above, it can be seen that 22(or 11.2%) of the respondents signified that they had current as well as adequate books and journals in their departmental or faculty libraries while 175(or 88.8%) respondents indicated that they had no current as well as adequate books and journals in the libraries of their faculty or departments.

From the data presented in Table 4.16 above, it can also be seen that a majority of the departmental and faculty libraries did not have current as well as adequate books and journals in their collections. This situation could have contributed to the general low output of theses from the departments that offered natural science or applied science courses in the university.This finding is similar to that of Downs (1966:126) where he pointed out that "the strongest graduate offerings are at institutions with the strongest

libraries".

Table 4.17 Adequacy of the Collection of Kashim Ibrahim Library, Faculty and Departmental libraries for the use of Postgraduate students in writing their theses

Category	Yes	%	No	%	Total No	%
Natural Science	22	11.2	29	14.7	51	25.9
Applied Science	61	31.0	85	43.1	146	74.1
Total	83	42.2	114	57.8	197	100

In Table 4.17 above the respondents were asked to state whether they considered the collections of Kashim Ibrahim Library (KIL) and other libraries in their department and faculty adequate to the use of their postgraduate students in writing their theses. From the data presented in Table 4.17 above it can be seen that 83(or 42.2%) respondents considered the collections of these libraries adequate while 114 (57.8%) remarked that the collections of theses libraries were inadequate for the use of their postgraduate students in writing their theses. The findings of this study are that the collection of the libraries in these departments and faculties as well as Kashim Ibrahim library were inadequate for the use of the postgraduate students that offered science or applied science courses in the university in writing their theses. This finding agrees with the conclusion of the University Grants Committee, London (1967:13) which stated that the books and periodicals required by the graduates for their studies

should generally speaking be available in a university library.

Table 4.18: Availability of Academic Staff with requisite qualification to teach and supervise postgradaute students.

Category	Yes	%	No	%	Total No	%
Natural Science	19	9.6	32	16.2	51	25.9
Applied Science	66	33.5	80	40.6	146	74.1
Total	85	43.1	112	56.9	197	100

The respondents were asked to indicate yes if they had enough academic staff and no if they did not have enough academic staff with the requisite qualification to teach and supervise postgraduate students in their departments. From the data presented in Table 4.18 above it can be seen that 112 (or 56.9%) respondents reported that they did not have enough academic staff with requisite knowledge to teach and supervise postgraduate students.

The findings of this study are similar to that conducted by Subbarao (1968:425) who reported that the number of scholarly and research oriented faculty members who are active in publication and capable of inspiring and guiding postgraduate students is the most important factor that influences the production of doctorates.

From the interview conducted among the academic staff, it was revealed that there had been an exodus of highly qualified and experienced academic staff from this university to other

universities in Nigeria and overseas as well as to the other sectors of the economy in search of better employment opportunities.

Table 4.19: The funding of postgraduate programmes of the departments offering natural and applied science courses in Ahmadu Bello University

Category	Adequate	%	Fair	%	Inadequate	%	Total	%
Natural Science	2	1.0	17	8.6	32	16.2	51	25.9
Applied Science	9	4.6	36	18.3	101	51.3	146	74.1
Total	11	5.6	53	26.9	133	67.5	197	100

The respondents were asked to show whether the postgraduate programmes of their departments were adequately, fairly or inadequately funded by the university. The data presented above inidcated that 133(or 67.5%) respondents agreed that the postgraduate programmes of their departments were inadequately funded. Some 53(26.9%) mentioned that their postgraduate programmes were fairly funded while 11(or 5.6%) respondents stated that the postgraduate programmes of their departments were adequately funded.

This finding revealed that the postgraduate programmes of the departments in the Faculty of science and the five faculties offering applied science courses (Agriculture, Engineering, Medicine, Pharmaceutical sciences and Veterinary medicine) were inadequately funded by the unviversity.

REFERENCES

Aiyepeku, W.O. (1974). "Towards a methodology of Bibliometrics" Nigerian Libraries. Vol.10, nos 2 & 3. p. 89

Downs, R.B. (1966). "Doctoral programs and library resources. College and Research Libraries. Vol. 27, (2) 126-127.

Ifidon, S.E. (1978). "Factors in the production of higher degrees in the humanities and social sciences" International library Review Vol. 10, (3) p 309.

Subbarao, S.M. (1968). "The place of library resources in doctoral programs. College and Research Libraries Vol. 29, (5) 424. pp. 425-430

Tyron, S.J. (1976). "Theses and Dissertation accepted by graduate library schools; 1974 through December 1975" Library Quarterly Vol. 46 (4) P.433

University Grants committee, London (1967) "Report of the Committee on libraries" H.M.S.O. p 13.

LIBRARY

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a summary of the findings, conclusion and recommendations. The focus of this study has been to determine the pattern of growth of postgraduate theses in natural and applied sciences in Ahmadu Bello University, Zaria, from 1967 to 1992 and to find out the factors responsible for the varied output of theses. The research is concentrated on the fifty teaching departments: 9(nine) in the Faculty of Science and forty-one in the five faculties; namely, Agriculture, Engineering, Medicine, Pharmaceutical Sciences and Veterinary Medicine that offered natural and applied science courses in the university.The original reports of scientific and technical investigations make up the bulk of what is known as the primary literature. Theses, one form of primary literature, constitute the archive or permanent record of the progress of science. According to Wood, (1973:15) the primary literature by its nature is widely scattered, disconnected and unorganised.

Theses make substantial contribution to the primary literature, its main function is to allow the candidates for a higher degree award to demonstrate his grasp both of his subject and of research method. There is much evidence to show the neglect of thesis literature by scientists and

technologists themselves. Grogan (1985:351) acknowledged that Boyer (1973) complained of the almost total void of knowledge about the dissertation as a vehicle for the dissemination of results. Collections of theses in research libraries in the United Kingdom and United States are negligible, with most universities acquiring only their own. The lack of good record of postgraduate theses, particularly in the natural and applied sciences in the university, which is a serious handicap to the development of science and technology, necessitated this study. Science rests on its published records. When a later scientist comes along wishing to advance knowledge in his field, it is vital for him to discover what has already been achieved. He turns therefore to those records of observation and experiment left by his predecessors. (periodicals, research reports, theses and dissertations etc).

It is with this view that there is a need to provide a complete bibliographical list of the postgraduate theses on natural and applied sciences in Amadu Bello university, determine their growth, and to find out the factors responsible for their varied output in the 50 (fifty) teaching departments in the six faculties that offered natural and applied science courses in the university.

The documentary sources of communication which are the postgraduate theses produced by the fifty teaching departments under the six faculties that offered science and technology based courses in the university as well as their list produced

by some of the department and in some library catalogues in the university were the primary sources of gathering data. This enabled the researcher to know the number of theses produced by each department. The questionnaire method was employed to obtain information on the factors responsible for the low or high output of theses by these departments. The researcher also conducted interviews among some academic staff of these departments after considering the limitations of the questionnaire method.

A total of 234 (two hundred and thirty four) questionnaires were distributed to a stratified randomly sampled population of the academic staff in the six faculties that offered natural and applied science courses in the university from 1967 to 1992. The population of academic staff in each faculty as well as their percentage in the total number of academic staff in the six faculties determined the number of questionnaires distributed to each faculty. Two hundred and five questionnaires (or 87.6%) out or 234 questionnaires distributed were returned and 197 (or 84.1%) were found usable for the study.

The findings were drawn from the output of theses produced by each of six faculties, the fifty teaching departments that offered natural and applied courses and the one hundred and ninety seven questionnaires distributed among the academic staff in the faculties and departments. The findings of this study are only applicable to these faculties

and departments.

5.2 Summary of findings

The various sets of data were gathered and subjected to a series of analyses in order to provide answers to each of the research questions. Based on the data analysed in chapter four of this study, the following are the summary of the findings of this study.

The first research question sought to find out the productivity pattern of departments in the output of postgraduates theses on natural and applied science in Ahmadu Bello University from 1967 to 1992.

The most productive departments in the output of postgraduate theses are Department of Physics with 86(8.34%), Department of Chemistry with 79(7.66%), Department of Agronomy with 58(or 5.62%), Department of Mechanical Engineering with 56 (or 5.43%), The Department of Crop protection and the Department of Mathematics with 50 (or 4.84%) theses each. These six departments constitute the core departments in the output of theses on natural and applied science in the university from 1967 to 1992.

The second research question sought to find out the most productive faculties in the output of postgraduate theses (master's and doctoral) on natural and applied science courses in the university from 1967 to 1992.

The Faculty of Science with 382(or 37.1%) theses was the

most productive faculty in the output of postgraduate theses on natural and applied science in the university from 1967 to 1992. Following the Faculty of Science was the Faculty of Agriculture with 252 (or 24.4%) theses. Three faculties did not produce postgraduate theses up to 100 each. These are the Faculty of Veterinary medicine with 99 (or 9.6%), Faculty of Pharmaceutical Sciences with 56 (or 5.4%) and the Faculty of medicine with 11 (or 1.1%) theses.

The third research question sought to find out the pattern of distribution of master's and doctoral theses output in the six faculties and the fifty teaching department that offered natural and applied science courses in the university from 1967 to 1992.

The productivity of master's theses was seen to have recorded significant growth in almost all the faculties except in the faculty of medicine where only four master's theses were produced. In general master's theses grew from 71 theses produced in the 1967 to 75 period to 324 in the 1976 - 84 period and to 469 in the last period of 1985 - 1992. The Faculty of science with 328(or 38.0%) theses produced the highest number of master's theses on natural and applied science in the university from 1967 to 1992. It was followed by the Faculty of Engineering with 216 (or 25%) theses. The faculty of Medicine produced only 4(or 0.5%) theses.

The productivity of doctoral theses by the six faculties that offer natural and applied science courses in the

university from 1967 - 1992 was observed to have grown in some faculties and at different periods of the study. Significant increase in doctoral theses output were recorded in the faculty of Agriculture and the Faculty of Science in all the three periods of the study. The Faculty of Science with 54(or 32.3% doctoral theses was the most productive faculty in doctoral theses output. It was followed by the Faculty of Veterinary medicine with 42 (or 25.1%) theses. The Faculty of Medicine was the least productive faculty in the output of doctoral theses with 7(4.2%)

Research question four.

The fourth research question sought to find out the trend of distribution of postgraduate theses output in the six faculties and the fifty teaching departments teaching natural and applied science courses in the university from 1967 - 1992?

The productivity of master's and doctoral theses was generally low at the initial period but witnessed some growth in the 1980's and reached its peak in 1987 but recorded some decline towards the end of the study. The yearly output of theses were observed to have increased in most faculties between 1979 and 1987. Master's and doctoral theses grew from 91 in the 1967 to 1975 period to 400 in the 1976 to 1984 period and to 540 theses in the 1985 to 1992 period.

Research question five

The fifth research question sought to find out the factors that contributed to the low and high theses output in the fifty teaching departments that offered natural and applied science courses in the university from 1967 to 1992.

The quality and hardwork of the postgraduate students in the departments with 43 (or 21.8%) respondents and availability of academic staff with requisite qualification to handle postgraduate programmes with 42 (or 21.3%) respondents were the main factors that contributed to the high output of theses.

Non-availability/inadequacy of relevant library materials to support the postgraduate students in writing their theses with 79(or 40.1%) and inadequate funding of the postgraduate programmes of the departments with 76 (or 38.5%) respondents and the lack of chemicals and equipment in the laboratories and workshops as well as inadequate current books and journals in the libraries in the university are the major factors that contributed to the low output of theses in some departments.

5.3 Conclusion

Six departments were the most productive departments in terms of postgraduate theses output. These Departments are Physics, Chemistry, Agronomy, Mechanical Engineering, Crop protection and Mathematics. These departments constitute the core departments in the output of theses on natural and

applied sciences in the university from 1967 to 1992. The availability of qualified academic staff to handle postgraduate programmes as well as the quality and hardwork of the postgraduate students enrolled for postgraduate studies contributed to the high output of theses in these departments. The Faculty of science and the Faculty of Agriculture were the most productive faculties in the output of postgraduate theses on natural and applied sciences in the university. The lack of qualified academic staff to teach and supervise postgraduate students and the lack of finance to acquire and establish necessary facilities in some departments accounted for the low productivity of theses in some departments that offer natural and applied science courses in the university.

The conditions necessary for high productivity of theses depends on a number of factors among which are the existence of good library facilities, financial aid available to postgraduate students and the faculty, quality of postgraduate students and the availability of the right type of faculty members. This is supported by Downs (1966) and Subbarao (1968) that the factors involved in successfully implementing a doctoral programme are many and complex, to carry out such a programme in a variety of fields,. there should be at least three thousand current periodicals and five hundred thousand volumes. The existence of good library facilities is generally, at best a necessary condition for the production of doctorates. The existing information systems in Ahmadu Bello

University can support the postgraduate programmes in the university. Theses productivity in natural and applied sciences as a measure of manpower output in this university is not satisfactory in relation to the demand for the services of a variety of high level manpower of scientists and technologists in a developing country like Nigeria.

5.4 Limitations of the study

Time and resources were the two limitations of the study. Only thirteen months were used in collecting all the data for this study. If there had been more time, more theses might have been discovered from some departments, especially those departments that no list of theses existed to facilitate the quick collection of data. The bibliographic data base of the master's and doctoral theses used for this study is therefore not complete in its listing of sources. However, this researcher is confident of the comprehensiveness of the data base. The number is however small as it was a problem that was noticed in one department. The limitation of the data did not however affect the results of the study.

5.5 Recommendations

Based on the findings of this study the following recommendations are made:

1. The university should publish the list of theses used for this study. This list is presented in appendix IV of this

study. The list may be given the title "List of theses accepted for higher degrees on science and technology in Ahmadu Bello University, Zaria 1967-1992"

2. To reduce the movement of academic staff to other universities and other sectors of the economy in Nigeria and abroad, the university should provide suitable working environment for its academic staff (well equipped laboratories, workshops and libraries) to enhance their productivity and subsequent high output of theses from the departments.

3. Since it was found that non-availability/inadequacy of relevant library materials contributed to the low output of theses in some departments, adequate funds should be provided for the libraries in the university to enable them to procure relevant information sources to support the postgraduate programmes of the departments.

4. The main library (Kashim Ibrahim Library) faculty and departmental libraries should strive to acquire adequate current books and journals to enhance postgraduate studies and facilitate the writing of theses.

5. The postgraduate programmes of each department that offers natural and applied science courses in the university should be adequately funded by the university as a means of improving postgraduate studies in the university.

Suggestions for further studies

1. The scope of this study is limited to the productivity of

theses in the departments that offer natural and applied science courses and the factors that contributed to the high and low theses output. It is difficult to make valid generalizations to the entire university, therefore further research on the theses output by the departments that offer social sciences and humanities course in the university should be conducted.

2. A citation analysis of all the literature cited in he 1,031 theses produced in the fifty teaching departments and the six faculties that offer natural and applied science courses in the university, particularly recent theses could be carried out to determine the availability of the cited information sources in Ahmadu Bello University library complex and to determine the extent to which they support the postgraduate programmes in the university.

KASHIM IBR

Downs, R.B. (1966). "Doctoral programs and library resources" College and Research Libraries vol. 27, (2) pp.123 - 129.

Grogan, D. (1982). Science and technology. an introduction to the literature. 4th edition. London: Clive Bingley. p. 351.

Subbarao, S.M. (1968). "The place of library resources in doctoral programs" College and Research libraries Vol. 29, (5).pp. 425 - 430

Wood, D. N. (1973)"Use of earth sciences literature" London: Butterworths, p.1.

IKASHIM IBRAHIM LIBRARY

BIBLIOGRAPHY

Abbas, A.A. "Annotated bibliography of higher degree theses submitted to Ahmadu Bello University 1962 - 1975" B.L.S. project. Ahmadu Bello University, Zaria, 1977.

Abdulahi, T.T. "The preservation problems of information sources in the eleven faculties of Ahmadu Bello University" (unpublished M.L.S. thesis). Department of Library and Information Science, Ahmadu Bello University, Zaria, 1991.

Adamu, S.O. and Johnson, T.L Statistics for beginners, Ibadan; Evans Brothers Limited 1985.

Adegbule - Adesida, E.K. Characteristics of the literature of Agricultural Research in Nigeria 1961 - 1980 Nigerian Library and Information Science Review Vol. I, 5 (1 and 2) 1987. pp. 25 - 36.

Adeyanju, T.K. Educational Research in Northern Nigeria: An annotated bibliography of students theses and projects, 1980.

Afolabi, M. "A handbook of Bradford - Zip bibliograph" Department of library science, Ahmadu Bello University, Zaria. Unpublished paper 1980.

Afolabi, M. "Introduction to research methods for writing proposals, projects and theses Alpha publishers, 1998.

Afolabi, M. and Mohammed, Z. Subject and geographical analysis of final year undergraduate library science projects. Ahmadu Bello University, Zaria. Library Scientist Vol. 11, 1988. pp. 32 - 44.

Agada, J. "Bibliographical control, Problems Involved in the control of Nigefian Publications" (G.L.S. Final year Project) Ahmadu Bello University, Zaria 1977.

Aguolu C. C. American Dissertations on foreign Education: A bibliography with abstracts Nigerian Libraries vol. 11 (1 & 2) 1973

Ahmadu Bello University, Zaria Newsbulletin. February, 1 1990.p. 3

Ahmadu Bello University, Zaria. postgraduate school Deans annual report. 1982/83 session.

Ahmadu Bello University, Zaria. Postgraduate prospectus 1981-1982 session.

Aina L.O. "Characteristics of the Literature of scientific research in Nigeria 1960-1975" Nigerian Library and Infomation Science Review Vol. 1, (2) 1983.

Aiyepeku, W. D. "Bibliometrics and documentation characteristics of geographical literature on Nigeria 1700-1970" Unpublished ph.D thesis (Library Science) University of Ibadan, Nigeria 1973.

Aiyepeku, W.O. "UNISIST: Its implication and technoligical information policicies in Nigeria" Nigerian libraries Vol. 10 (2 & 3) 1974). pp 117 - 130.

Aiyepeku, W.D. "Towards a methodology of Bibliometrics" Nigerian Libraries Vol. 16 (2 & 3) 1974.

Akinwumi, K. Local "Bibliographic control in the social sciences: problems and suggested selections' Nigerbiblios Vol. 10, (3) 1985. pp. 63 - 67.

Akoh, J.A. "An analytical study of the postgraduate theses on Agriculture submitted to Ahmadu Bello University zaria. 1979 - 1990. Unpublished (B.L.S.) find your project . Ahmadu Bello University, Zaria 1992.

Akande, O. Comprehensive index of postgradaute disssertations in Science and technology accounts of Nigerian Universities 1948-1978 Lagos: National Science and technology agency. (NSTA) 1979.

Baker, R. Introduction to Library research in french litreature Colorado: West view press, 1998.

Bradford, S.C. "Sources of information on specific subjects" Engineering 137 (3558) 1934. pp. 85 - 86.

Burchinal, L.G. "International transfer of Scientific and technical information" Serial librarian Vol. (4) 1977. pp 353 - 356.

Chen, C. Quantitative measurement and dynamic library service London Greenwood press, 1978.

Committee of Vice-Chancellors of Nigerian Universities. The Nigerian Universities and the Udoji Commission, 1975.

Department of Agricultural Engineering. List of theses awarded postgraduate degrees 1982-1993.

Department of Agronomy, List of theses awarded postgraduate degrees 1968-1992.

Department of Human Physiology. List of postgraduate theses awarded degrees.

Department of Library Studies, "University of Ibadan. Paper on "Colloquium on education and training for librarianship in Nigeria 15-19th March 1994".

Dike, E. The dilema of choice of technology The Guardian August 10, 1987.

Downs, R.B. "Doctoral programs and Library resources". College and Research Libraries Vol. 27, (2) 1966. pp. 123 - 129.

Downs, R.B. "Doctoral programs and library resources" College and Research Libraries Vol. 30, 1969. pp. 417 - 421.

Egbule, B.C. "A history of Ahmadu Bello University library complex 1962-1977" (Unpublished MLS. thesis) Ahmadu Bello Univesity, Zaria. 1977.

Embling, J. Afresh look at higher education: Europeans implications of the Carnagie Commission reports. New York: Elsevie Scientific publishing company. 1974.

Emmerson, W.L. "Adequacy of Engineering resources for doctoral research in a university library" College and Research Library Vol. 18, 1957. pp. 455 - 560.

Ezeji, J. "Ahmadu Bello University., Zaria. Theses and Dissertations Abstracts 1962-1978" Kashim Ibrahim Library, Nigeria, 1984.

Ezeji, S. "Dissertation abstracts, Nigerian abstracts of postgraduate theses and dissertations submitted to Ahmadu Bello University, Zaria 1973-1978" (B.L.S. final year project) Ahmadu Bello UNiversity Zaria. 1984.

Fafunwa, B.A. A history of Nigerian higher education. Ibadan: Macmillan and co Limited, 1971.

Gray, L. Educational research competencies fof analysis and appreciation. Columbia: Charles and Meril publishing company 1976.

Grogan, D. Science and technology: An introduction to the literature. London: clive Bingley, 1970. p. 10.

Holt, C.C. and Shrank, W.E. "Growth of the Professional Literature on economics and other fields and some implications"Americal Documentations Vol. 19(1), 1968. pp. 18 - 26.

Ibrahim, S.K. "The address of Sir Kashim Ibrahim on the opening of the new Kashim Ibrahim Library, Ahmadu Bello University. 1976.

Ibrahim, U. "Bibliometric analysis of Entomological Research in Nigeria 1903 to 1985" (Unpublished M.L.S thesis) Ahmadu Bello University, Zaria 1991.

Ifidon, S.E. "A quantitative assessment of the adequacy of Nigerian University library collections in the humanities and social sciences in relation to postgraduate research" Unpublished Ph.D. thesis. University of Ibadan Nigeria, 1977.

Ifidion, S.E. "Factors in the production of higher degrees in the humanities and social sciences" International Library Review. Vol. 10, (3) 1978. pp 301 - 307.

Ike, V.C. University development in Africa: the Nigerian experience" Ibadan: Oxford University Press, 1976.

Kashim Ibrahim Library. Official opening ceremony of the building, University Librarians speech. November, 1976.

Kashim Ibrahim Library, Ahmadu Bello University, Zaria catalogue information of Ahmadu Bello University postgraduate theses.

Kerlinger, F.N. Foundations of behavioural research: Ney York: Halt Reinehart and Winson inc. 1973.

Kibirige, H.M. "Bibliographical control in Africa. State of the art "Internation Library Review" Vol. 10(3), 1975. pp. 312 - 326.

Kochen, M. Intergrative mechanism in literature growth London: Greenwood Press, 1974.

Krejcie, R.V. and Morgan, D.W. "Determining Sample size for research activities" Educational and psychollgical measurement. Vol 30. 607 - 610.

Krumar, G. and Krumar, K. Bibliography 2nd revised edition. New Delhi: Wikas publishing company, 1979.

Lee, T. Railsback Library, Faculty of Veterinary Medicine. Ahmadu Bello University, Zaria. Catalogue information of postgraduate theses awarded degres in the faculty, 1993.

Malinowsky, H.K. Science and Engineering literature Littleton: Libraries unlimited. 1976.

Mclnis, R.M. "Research collections an approach to the assessment of quality" Institute of Professional librarians of Ontario (IPLO) quarterly Vol. 8. 1971. pp. 13 - 22.

Mohammedally, R. "Bibliographical control in Pakistan International library Review. Vol. 18, 1986.

Montgomery R. "productivity in toxicity papers" Journal of American Society for information science Vol. 24, 1973. pp. 402 - 408.

Nwagha, G.K.N. "Barriers to the accessibility of scientific journals in Nigeria" International Library Review Vol.12, 1980. pp. 201 - 207.

Nweke, K.M.C. "An analytical study of Ibadan library school higher degrees dissertations/theses titles" Nigerian Libraries Vol. 21, (2) 1985. pp. 39 - 49.

Ofori, P.E. and Amune, S.A. Retrospective index to Nigerian Doctoral Dissertation and masters thesess in science and technology 1985-1980. Vol. 1. Gaskiya Corporation. 1984.

Ogunsheye, A. "Research as basis of development". Nigerian Libraries Vol. 7 (1 & 2) 1971. pp. 89 - 99

Ojo, A.A. "Bibliographical control in Nigeria, problems and prospects" (paper presented at the Nigerian Library Association seminar on problems of cataloguing and classification in Nigerian libraries" 19th - 23rd July 1982.

Ojo, F. Nigerian universities and high level manpower development Lagos university press pp. 1983.

Okafor, N. The development of universities in Nigeria: a study of the political development in Nigeria 1868-1907) London: Longman 1971

Oke, F. E. "Development of modern technology Paper presented at the annual conference of the Nigerian library Association held at Ilorin" December 3-7 1978.

Olafioye, A. O. "The university library and its community". The Lagos librarian Vol. 3, (4) 1968. pp 28 - 33.

Omotola, E. G. "Path to economic and technological development in Nigeria. The role of libraries" Nigerbiblios. Vol. (1) 1987. pp. 10 - 17.

Oni - Orisan, B.A. "The Library as an organ of academic discipline" Nigerbiblios. Vol. 12, (3) 1987.

Ononogbo, R. U. "Planning the infrastructure of information 1971-1979" International library Review. Vol. 18, (1) 1986. pp. 57 - 74.

Osiobe, S.A. "Nigeian universities Dissertation Abstracts, A complete listing of dissertations". Vol.1; 1960-1975. University of portharcourt press, 1989. 467p. In African Book collection limited, catalogue no.3 1991.

Parker, B. "American Dissertations on foreign education: A bibliography with abstracts" in Aguolu, C.C. Nigerian libraies. Vol.II, (1&2) 1973

Postgraduate school, Faculty of medicine list of postgraduate theses awarded degrees in the faculty.

Robinson, A.M.L. Systematic bibliography: A practical guide to the work of compilations 3rd editon London: Clive Bringley, 1960.

Schlacter, G.A. and Thompson, D. Library Science dissertations 1925 - 1972: An annotated bibliography" Colorado: libraries Unlimited. 1974.

Salim, G. D. American Doctoral Dissertations on the Arab world 1984-1974. Washington: Library of Congress. 1976.

Sengupta, I.N. "Recent growth of literature of Biochemistty and changes in ranking of periodicals" Journal of Documentation Vol.29, (2) 1973. pp. 192 - 211

Stevens, R.E. " The use of library matarials in doctoral research: a study of the effect of differences in research method library quarterly Vol. 23, 1953. pp. 33 - 41.

Subarao, S.M. "The place of library resources in doctoral programs College and Research libraries Vol.29, (5). 1968. pp. 425 - 430.

Tyron, J.S. 'Theses and Dissertations accepted by graduate library schools: 1974 through December 1975 Library quarterly Vol. 46, (4) 1976. pp. 431 - 436.

University Grants Committee, London Report of the Committee on Libraries H.M. S.O. (1967).

Western Nigeria. "White paper on the establishment of a university in Western Nigeria sessional paper (2) 1960.

Wood, D. N. Use of earth sciences literature London: Butterworth, 1973.

Yusuf, T.M. Creating the African University Emerging issues of 1970's" Ibadan: University Press, 1973.

APPENDIX I

Department of Library & Information Science
Faculty of Education
Ahmadu Bello University
Zaria.

17th May, 1993.

Dear Sir,

A QUANTITATIVE STUDY OF THE POSTGRADUATE THESES ON SCIENCE AND TECHNOLOGY IN AHMADU BELLO UNIVERSITY, ZARIA FROM 1962 - 1992

The bearer of this letter is a research assistant on the above Master of Library and Information Sciece (M.L.S.) Thesis title.

Please Sir,give him/her all the necessary assistance at getting all the bibliographic information of all the master's and Ph.D thesis titles in your department/faculty.

Thanks for your cooperation.

ADUKU, Baba S.
Lecturer
Department of Library & Information Science
Ahmadu Bello University, Zaria.

APPENDIX II

Department of Library & Information Science
Faculty of Education
Ahmadu Bello University
Zaria.

17th May, 1993.

.....

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_____

Dear Sir,

LETTER OF INTRODUCTION

This is to introduce Mal. Baba S. Aduku a staff of the above named department who is conducting a study on postgraduate theses produced by your department on science and technology in Ahmadu Bello University. Zaria 1962 - 1992

The information that he need from each of these thesis are:

(a) The author of the thesis
(b) The title of the thesis
(c) The degree awarded (M.sc or Ph.D)
(d) The year of award

Thank you for your anticipated cooperation.

Yours sincerely,

Prof. D. O. Bozimo
Head,
Department of Lib. and Information Science.

APPENDIX III

Department of Library and Information
Science, Ahmadu Bello University,
Zaria.

22/7/1994

.....

.....

.....

Dear Sir/Madam,

A QUANTITATIVE STUDY OF THE POSTGRADUATE THESES ON THE SCIENCE AND TECHNOLOGY IN AHMADU BELLO UNIVERSITY, ZARIA FROM 1962 - 1992

I am a Postgraduate Student of the above named department and currently carrying out a study with the above title.

Enclosed is a questionnaire which seeks to probe into the factors that are responsible for the low or high number of theses output by each department under science and technology in the University.

Your cooperation in filling this questionnaire will contribute to the success of thie study and also enhance the writing of postgraduate theses as well as Postgraduate studies in the University.

All the responses will be treated confidentially and used solely for the purpose of this study.

Thank you for your cooperation.

Yours sincerely,

BABA S. ADUKU

Questionnaire for the academic staff in the teaching departments offering science and technology courses in Ahmadu Bello University Zaria.

(1) Name of Faculty .....

(2) Name of Department.....

(3) When was the Department established? 19.....

(4) How many years have you been teaching in the department?

(a) 1 - 5 years ( )

(b) 6 - 10 years ( )

(c) 11 - 15 years ( )

(d) 16 years and above ( )

5. Is there a postgraduate programm in your department?

(a) Yes ( )

(b) No ( )

(6) If yes when did your department start its postgraduate programme? 19.....

(7) Which of the following postgraduate programmes are available in your department?

(a) M.Sc only ( )

(b) Ph.D only ( )

(c) Both M.Sc and Ph.D ( )

(d) Others, specify .....

(8) If no, which of these is a reason why your department is not having a postgraduate programme?

Indicate your responses by making X in the columns provided below.

	no effect	Little effect	Great effect
1. Lack of qualified academic staff to teach and supervise postgraduate works.			
2. Lack of finance to acquire and establish necessary facilities for postgraduate studies in the Department.			
3. Availability of a postgraduate programme conducted by the professional body outside the University.			

9. Is the writing of thesis or dissertation one of the requirements for the award of a higher degree in your department? (a) Yes ( )
(b) No ( )

10. If yes, How would you consider the output of theses and the number of postgraduate students that have graduated from your department? (a) High
(b) Low

11. If your response to number 10 above is high output, what among the following factors would you say contributed to this highoutput of theses in your department.

Indicate your response by making X in he appropriate columns provided below.

	No effect	Little effect	Great effect
(a) Adequate library collections in terms of books and.....			
(b) Availability of Academic staff with required knowledge to handle postgraduates.			
(c) An encouraging funding of the postgraduate studies in your department by the University.			
(d) The quality and handwork of the postgraduate students of your department			

Specify any other factor(s).....

.....

12. If your response to number 10 above is low output, how would you rank the following as the factors that have contributed to the low output of theses by your department.

Key to Your Ranking

1 - No effect

2 - Little effect

3 - Moderate effect

4. - Great effect.

(a)	Inability of postgraduate students to finance their postgraduate studies.
(b)	Non availability/inadequacy of relevant library materials (books and journals) in the library to support the students in writing their theses
(c)	Lack of or inadequacy of academic staff to touch and suppervise the postgraduate studies.
(d)	Inadequate funding of the post-graduate programms in your department.
(e)	specify any other factor(s).....

.....

13. Do you have a departmentalor faculty library for the use of your postgraduate students and other persons interested in the literature of your discipline?

(a) Yes ( )

(b) No ( )

14 Do you have current as well as adequate books and journals in the above libraries to support the postgraduate programmes in your department? (a) Yes ( )

(b) No ( )

15. Would you consider the collections of Kashim Ibrahim Library and the other libraries in your faculty or department as adequate for the use of postgraduate students of your department in writing their theses?

(a) Yes ( )

(b) No ( )

16. Do you have enough academic staff with requisite qualification to teach and supervise the postgraduate students in your department? (a) Yes ( )

(b) No ( )

17. How is the financing of the postgraduate studies of your department by the university? (a) Adequate ( )

(b) Fair ( )

(c) Inadequate( )

18. Which of the following would you suggest for its improvement to enhance the writing of postgraduate theses and timely completion of postgraduate studies in your department?

(a) Library collections interms of books and journals indepartmental, faculty and Kashim Ibrahim library.

(b) The funding of postgraduate programme of your department.

(c) The number of academic staff with requisite qualification in the teaching and supervision of postgraduate students.

(d) Financial support to the postgraduate students

(e) Specify any other factor(s).....

.....

APPENDIX IV

The data base.

This bibliographic information is organised by faculties and under each faculty by the departments. It attempts to cover the theses produced on science and technology in the university between 1979 and 1992.

For the bibliographic information of theses produced between 1967 and 1978 see John Ezeji "Ahmadu Bello University, Zaria. Theses and Dissertation Abstracts 1962 - 1978. Kashim Ibrahim Library, 1984.

... IBRARY LIBRARY

FACULTY OF AGRICULTURE

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

1. ABDULAHI, Y.A."social relations of production in peasant agriculture. A case study of simple commodity production in Kaura Namoda area of Sokoto state". ph.D Agric. Econs, 1983.

2. ABOUBACAR, S. "Famers participation in rural development programes. The case of Konni irrigation project in Niger republic". M.Sc Agric Econs, 1985.

3. ADESIPE, M.Y. "Economic Optima for fattening steers on high concrete rations: Acase study of beef production in skika feedlot trials" M.sc Agric. Econs, 1981.

4. AHMED, B. "Scale economics in maize production: A case study of Daudawa farms in Kaduna State". M.sc Agric Econs, 1985.

5. AHMED, H.U. "Socio-Economic factors affecting the adoption behaviour of settled pastoralist fulani in Kachia Local Government of Kaduna State" M.Sc. Agric Econs., 1984.

6. AKANYA, E.E. " Adoptation of horticultural practices among small-scale farmers in Rano Local Government area of Kano State" M.Sc Agric. Econs, 1990.

7. AKINWADE, O.B. "Economic analysis of fertilizer application for sole crop sorghum production in northern Nigeria" M.Sc Agric. Econs., 1983.

8. AKU, P.S. "An evaluation of the impact of institutional agricultural loans of farm resource use in Kaduna state" Ph.D Agric. Econs., 1991.

9. ALI, O.P. "Co-operative maketing of palm produce. A case study of Igala co-operative marketing union Benue State" M.Sc Agric. Econs., 1985.

10. ALIYU, AUCHAN, S.K. "An empirical study of the impact of institutional agricultural credit at farm level in Funtua Local Government of Kaduna Stae, Nigeria" M.Sc Agric. Econs., 1986.

11. ANTONZAI, C.A. "Impact of Kaduna State Agricultural development project on low income small scale farmers of sabongida and Auzere villages in Jema'a local government area" M.sc Agric. Econs., 1989.

12. AWOLOLA, M.O. "The effects of different educational types on agricultural development in Nigeria: The case of five villages in Zaria area of Kaduna state" ph.D. Agric. Econs., 1984.

13. BABA, K.M. "Economics of resource use in irrigated agriculture: A case study of pump systems in the Wester Zone of Bauchi state Agricultural development programme Nigeria" M.Sc. Agric. Econs., 1979.

14. BARAU, A.D. "The econimic of rice processing: A case study of the small scale rice processing industry in Wukari Local Government area of Gongola Stae of Nigeria" M.sc.Agric Econs.,1979.

15. CHUKE, G.O. "Problems and prospects of soyabeans marketing in Benue state, Nigeria" M.sc. Agric. Econs., 1983.

16. CISSE, Y. " Resource use and productivities: A omparative study of intensive and non-intensive farming systels in "Mali - Sud" rural development project" M.sc Agric. Econs., 1987.

17. EKELE, E.H. "Farm size economic efficiency: A case study of Crop farms of different size groups in the Funtual Agricultural development project of Kaduna State" M.sc. Agric. Econs., 1982.

18. GASHUA, A.S.G. "Farmers borrowing and repayment capacity in small holder loan scheme. A case study of Funtua Local Government area". M.Sc Agric. Econs., 1987.

19. GILIMA, S.I. "Water pricing policy under Large scale irrigation development project: The case of Kano river project:". M.Sc. Agric Econs., 1987.

20. HALIRU, Y. "Impact of Bauch State co-operative financing agency of farmers incomes". M.Sc Agric Econs., 1991.

21. IKEJIMBA, D.U. "Labour constraint in traditional rain-fed production: A case study of Uboma rice farms in Imo State". M.Sc Agric Econs 1985.

22. ISITOR, S.U. "Structure, conduct and performance of the cotton marketing system in Kaduna state". M.Sc Agric. Econs., 1985.

23. JIMOH,O.M. "Socio-economic study of adopter of national accelarated food production programme (NAFPP): maize production recommendation in Irewole Local Government area of Oyo State" M.Sc Agric. Econs., 1985.

24. MAIGA, A.S. "Optimum farm plans in irrigated agriculture: A case study of the Niger river development project "office Du Niger" In the Republic of Mali". M.Sc Agric Econs., 1983.

25. MAKARFI, A.M. "Economics of wheat production under surface irrigation: A case study of Kano river project phase I" M.Sc. Agric. Econs., 1985.

26. MATANMI, B.M. "Relationships beteen farmers soci-economic characteristics and sources of farm information in Gusau Local Government area of Sokoto State". M.Sc Agric. Econs., 1987.

27. MOHAMMED, i. " Comparative study of the economics of wheat and maize production underirigation: A case study of Rano river project phase I" M.Sc. Agric. Econs., 1988.

28. NJOKU, J.E. "The Nigerian groundnut marketing system. The role of licensed buying agents." M.Sc. Agric. Econs., 1981.

29. OFOJEKWU, P.O. "Economic analysis of tomato production under small-scale surface irrigation scheme. A case study of Galma irrigation scheme, Zaria" M.Sc. Agric Econs., 1987.

30. OKAIYETO, P.O. "Economics of resource use among the settled pastorial fulani in Gombe Local Government area of Bauchi State, Nigeria" P.hD. Agric. Econs., 1987.

31. OKANIGBE, J.O. "Rural savings and its utilization in Sokoto villages" M.Sc. Agric. Econs, 1987.

32. OKON, S. "Minimum lost rations and optimum marketing weights in broiler production with groundnut meal as the source of protein" M.Sc. Agric. Econs., 1983.

33. OKON, S. "An economic analysis ofsmall scale mixed farming system: The case of farm crop/livestock enterprises in Giwa distric of Kaduna State" Ph.D Agric. Econs., 1987.

34. OLORUFEMI - IDAOMI.,J.B. "A comparative study of the agricultural credit administration in Kaduna state: A case study of N.A.C.B. and commercial banks" M.Sc. Agric. Econs, 1986.

35. OTU, M.F." Analysis ofthe uses and effectiveness of co-operative banks' credit in Kaduna State". M.Sc. Agric. Econs. 1985.

36. PETER, A.I. "Loan deliquency among beneficiaries of Benue state small scale agricultural credit scheme in Vandeikya Local government area" M.Sc. Agric. Econs., 1989.

37. PHILIP, D.O.A. " Economic analysis of fartlizer application for sole crop maize production on the Ferriginous tropical soils of the Nigerian Savannah" M.Sc Agric. Econs., 1980.

38. SAM, S.M.B. "Technological change in small- holder agriculture.A comparative study under traditional and improved production systems in the Pujehun district of southern Sierra Leone" M.Sc. Agric. Econs., 1983.

39. SANNI, S.A. " Technological change in crop production among small - holder farmers: A case study of Taskari local government of Katsina State" MSc. Agric. Econs., 1991.

40. THOMPSON, M.W. "Impact of public credit agricultural programmes on the farm income of small farmers: A case study of Oyi Local Gogernment of Kwara State" M.Sc. Agric. Econs., 1987.

41. YARO, J.E. "Economic evaluation of the impact of Gombe Agricultural development project on resosurce use and productivity of farmers in Bauchi State". M.Sc. Agric. Econs., 1983.

42. YINUSA, A.H. "Some soci-economic determinants of rural savings behaviourin Igabi Local Government area of Kaduna State. M.Sc. Agric Econs., 1991.

AGRONOMY

43. ABDULKAREEM, Z.A. "Effect of varieties of phosphorus and stage of growth at application on the tolerance of cowpea (vigna ungliculata (Z) walp to norflurazon". M.Sc. Agronomy, 1984.

44. ABUBAKAR, A. "Effect of different weed control methods and nitrogen levels on yield and yield components of upland rice Oryla Sativa. M.Sc. Agronomy, 1991.

45. ADAMU, I. " Yield and yield components of maize and rice as affected by crop mixtures at different nitrogen levels".M.Sc. Agronomy, 1986.

46. ADELEKE, O.A. "Effect of weed control techniques and row spacing in groundnut (Arachis hypogea L.)" M.Sc. Agronomy, 1984.

47. AHMAD, M.A. "Effect of phosphorus molybdenum and staking on growth and yield on winged bean (prophocarpus tetragonoloba (L.)" M.Sc Agronomy, 1986.

48. ALIYU, L. "Effect of transplanting date plant population and nitrogen on the growth and yield of chili pepper (Capsicum frutescenes L.) M.Sc. Agronomy, 1990.

49. AMANS, E.B. "Growth and yield rresponse of onion (Allium cepa L.) to varying levels of nitrogenous and phosphatic fertilizers". M.Sc. Agronomy., 1982.

50. ARGUNGU, H.U., "The effect of moisture at stress at different growth stages under various seed rates on wheat (Triticium aestium L)" M.Sc, Agronomy, 1983.

51. ATTIA, F. "Growth and yield of photosensitive sorghum as influenced by plant density and fertility level in the savannah region of Nigeria" Ph.D. Agronomy, 1979.

52. ATUK, S. "Growth and development studies of sunflower (Helianthus annus. L) as influenced by plant density and sowing date". M.Sc. Agronpmy., 1988.

53. AWWALU, B.M. "The effect of nitrogen and plant population on the growth and yeield of vegetable amaranth (Amaranthus osculenthus L.)" M.Sc. Agronomy., 1988.

54. BETURE, A.M. "Effect of nitrogen and spacing on the growth and yield of potato (solanum tuberosum L.)"M.sc. Agronomy., 1985.

55. CHIEZEY, W.F. "Some physiological and morphologial determinants of grain yield in sorghum (Sorghum bicolor L. moench" M.Sc. Agronomy., 1981.

56. CHIEZEY, F. "Effect of plant density and phosphorus fertilizer on he yield and yield components of soybean (Clycine max (L) merril) in Nigeria" Ph.D Agronomy, 1990.

57. CHIGBUNDU, I. "Yield and yield components of cotton as effected by sowing date, row spacing and density at Samaru" ph.D Agronomy, 1987.

58. DADA, K.C. "Productivity of maize - cowpea mixture as influence by cowpea (Viqua unquiculata (L.)" ph.D Agronomy 1984.

59. EBIMA, J.C. "Effect of plant density on the performance of the sorghum (sorghum bicolor L.) moench hybrid" M.Sc. Agronomy., 1987.

60. ENOCH, M.I. "Effect of weed interference and season - long weed control in maize (Zea mays L.)" M.Sc. Agronomy., 1990.

61. EZEAKUME, C.O. "The effect of nitrogen and phosphorus fertilizers farm yard manure on growth and yield of local garden egge (Solanungilo) variety samaru striped" M.Sc. Agronomy., 1985.

62. FALKU, A.M. "The performance of matting barely hordeam vulgare L.(at two location in Nigeria) and the response of selcted cultivers to nitrogen of sele, and phosphatic fertilizers" Ph.D Agronomy., 1980.

63. IBRAHIM, H.D. "Effect of nitrogen and phosphorus on the growth and yield of sweet potato (Ipomea Batata L.)" M.Sc. Agronomy., 1985.

64. IKWELLE, M.C. "The performance of barely varieties (Hordem velgare L.) in the sudan zone of Nigeria" M.Sc. Agronomy, 1985.

65. ILA, L.M. "Effect of sowing date and time of nitrogen fertilizer application on yield and yield component of sorghum (Sorghum bicolor (L.) moauch) varieties" M.Sc. Agronomy., 1989.

66. ISAAC, S.L."The effect of gibberelic acid (GAZ) indole acetic acid (I.AA) and Kinetin and their combination on the growth and yield of onions (Allium cepa L.)" Ph.D. Agronomy., 1988.

67. ISHAYA, S.M. "Response of two varieties of okra (Abolmoschus esculenthis(L) moench) to nitrogen and phosphorus" M.Sc. Agronomy., 1983.

68. JIKA, M. "Response of cotton (Gosepium hissutum L.) to supplementary irrigation and nitrogen fertilizer rates." M.Sc. Agronomy., 1989.

69. KOLAWOLE, O.A."Effect of nitrogen, period of weed interference and chemical control on Okra (Abelmoschu's esculnthus (L) moeuch" M.Sc Agronomy 1988.

70. KUCHINDA, N.C. "Effect of Nitrogen and phosphorus on modulation growth and yield of garden egg (Solannum gillo) variety 'Samaru' striped Zaria" M.Sc. Agronomy., 1990.

71. LABE,D. "The effect of location, planting method and plant population on the performance of dauro millet in Nigeria". M.Sc. Agronomy., 1984.

72. LERE, G.A. "The effect of plant population and plant arrangement of the form of the performance of maize (Zea mays L.) and sorghum (sorghum bicolor L. moench) in mixed

crops". M.Sc. Agronomy., 1985.

73. MASSAM, R.Y. "The effect of plant population and arrangement on the field and agronomic characters of some cultivers of cowpea (Vigua unguiculata L. walp)" M.Sc. Agronomy., 1982.

74. MIKO, S. "Response of wheat varieties (triticum aestivum L.) to nitrogen treatment and seed rates under irigated condition". M.Sc. Agronomy., 1990.

75. MUHAMMAD, M. "The effect of nitrogen and phosporus fartlizers and farm yard manure on growth and yield of chili pepper (caspsicum frutesans. L.)" M.sc. Agronomy., 1989.

76. MUHTARI, M."Response of green gram vigua radiata (L) wikzek) and black gram vigua mungo (L) Hopper) to various intra-row spacing and phosphorus levels" MSc. Agronomy., 1991.

77. Musa, D. "Effect of time of basal fertlizer application on yield and yield component of maize" M.Sc. Agronomy., 1984.

78. MUSA, U.B.I. "The effect of nitrogen and phosphrus on the growth and yield of ginger (Zinbiber officinale Roscoe)" M.Sc. Agronomy., 1986.

79. MUSA, U.T. "Effect of seed size and phosphorus level on the growth and yield of cowpea (vigna unguiculata L. walp). varieties". M.Sc. Agronomy., 1990.

80. NDIKAVA, N. "Relative susceptibility of four grain sorghum (sorghum bicolor (L.) moench) cultivars to some selected herbicides" . Ph.D..Agronomy., 1988.

81. NIMZING, N.C. "Effect of applied nitrogen and water strees on the field and quality of bareley (Hordium vulgare L.)" M.Sc Agronomy., 1986.

82. ODION, E.C. "Effect of Genotype interaction, sowing date and stand density, with proportion and arrangement on mixture of millet and soghum with groundnut" M.Sc. Agronomy., 1990.

83. OPARA, C." Effect of supplementary irrigation and weed control on performance late sown maize (Zea mays L.)" Ph.D Agronomy., 1985.

84. ORTESA, T.T. "Effect of Plant Population on cowpea (vigna unguiculata L. Walp) mix cropped with maize Zea mays L." Ph.D Agronomy., 1984.

85. SALE, M.E. "Productivity of floral fertilizer on wheat plant as affected by some agronomic treatment" Ph.D. Agronomy., 1981.

86. SHEBAYAN, J.A.Y. "Differential response of guinea corn (Sorghum bicolor (L) moench) varieties to herbicides in Nigeria". M.Sc. Agronomy., 1982.

87. SHEHU, U.I. "Effect of age of seedlings and nitrogen nutrition on the growth and yield of chili pepper (Capsicum frutescens L.) M.Sc. Agronomy., 1990.

88. SHAABI, B. A. "The effect of seed size and number of seed per hole on the growth and yield of cowpea (Vigna unguiculata (L.) varieties" M.Sc Agronomy., 1988.

89. TANIMU, B. "Moisture and gypsum effect on plant development and pod - kill of groundnuts (Arachi's hypogea L.) M.Sc Agronomy., 1982.

90. TARFA, F.G. "The effect of rate, time and method of nitrogen application on the performance of grains sorghum (sorghum bicolor L. moench)" Hybrid SS H.S. M.Sc Agronomy., 1987.

91. TENEBE, V.A. "The effect of sources and level of phosphorus on the growth and yield of cowpea (vigna unguiculata L.) walp varieties". M.Sc. Agronomy., 1987.

92. UBI, E.O. "The effects of sowing date and seedling rate on yield and yield component of irrigated wheat (Triticum aestivum L.) at Kaduna Nigeria" M.Sc. Agronomy., 1985.

93. YAKUBU, T. "Effect of sowing date and moisture stress on dry season maize (Zea mays L.)" M.Sc. Agronomy., 1985.

94. YEV, T.J."Effect of phosphorus and Zinc on the growth nodulation and yield of soyabean (Glycine max (L.) merril)". M.Sc. Agronomy., 1982.

95. YUNNAWA, B. "The effect of mixed cropping and seedling age on the performance of pepers (capsicum species)" M.Sc. Agronomy., 1982.

96. YUSUFU, I.K. "Effect of plant population, sowing date and variety on tiller survival and yield of pearl millet (pennisetum typhoodes (Beuim) stapt and Hubbard. M.Sc Agronomy., 1985.

ANIMAL SCIENCE

97. ABDULAHI, B. "Agronomic studies of three cultivators os stylosanthes civionesis in the northern Guinea savannah zone of Nigeria" M.Sc Ani.Sc., 1981.

98. ABII, J.B. "Nutritive value of what - offal in the feeding of sheep" M.Sc. An. Sc., 1986.

99. ABUBAKAR, M. "Effects of phosporus level and soil type on the growth of caribean style stylosanthes hamata" CV. Verano . M.Sc Ani. Sc., 1987.

100. AGAANGA, A.A. "Water metabolism of indigenous Nigerian sheep and goats" Ph.D Ani., Sc., 1987.

101. AGISHI, E.C. "Field studies on seed production in three tropical pasture grasses at shika Nigeria" Ph.D Ani.Sc., 1984.

102. AKPAN, O.U. "Studies on Growth and reproduction in Newzealand white and Dutch breeds of rabbits". M..Sc Ani. Sc., 1988.

103. ANI, O.B. "The value of sugarcane Molasses as an energy supplement in rations for fattening cattle". M.Sc Ani Sc, 1980

104. BUTSWAF, I.S. "Ram semen prosevation at ambient temperature by flow dialyses techniques" M.Sc. ani. Sc., 1989.

105. EHOCHE, O.W. "Compensatory growth in Sokoto Gudali Bulus" P.hD. Ani.Sc., 1987.

106. EZEAKU,G.U. "Effect of phosphorus level and defoliation date on seed production of stylo (stylosanthes GuianensisCV Schofield) in the Southern Guinea savanna Zone of Nigeria" M.Sc., Ani.Sc., 1982.

107. FAYOMI, A. "Genetic aid non-genetic factor affecting Growth rate and unproduction of Balami uda sheep" M.Sc Ani.Sc., 1989.

108. GAZAL, S.O. "Effect of an antiprogesterone Ru486, and relaxin on peripartum Hormonal profiles and parturition induction in late -pregnant Ewes" M.Sc Ani. Sc., 1991.

109. HASSAN, W.A. "genetic and Environmental effects on the growth rate of Yankasa lambs"M.Sc Ani Sc., 1987.

110. IWUANYANWU, I.E.J. "Intake digestibility and live right change of Beef Heifler fed native Hay and supplement with urea blood-Meal, Molesisses or Bonemeal" M.Sc ani. Sc., 1987.

111. JIBIA, M.M. "Evaluation of Nutritive value of composite millet (Penniselum americanum) for chicken" M.Sc Ani. Sc., 1986.

112. JOHNSON, A.O. "Evaluation of the daily potential of Bunaji and Bokoloju breeds" Ph.D. Ani.Sc. 1987.

113. KANKUKA, F.G. "Bonemeal and Rock phosphate as sources of calcium and phosphorus for weaner and grower pigs" M.Sc Ani.Sc., 1990.

114. LUFADEJU, E.A. "Evaluation of methods of improving utilization of mature Andropogon gayanus (Gamba hay) by Friesian - Bunasi heifers" Ph.D Ani. Sc., 1988.

115. MAGAJI, Y.I. "The effect of different levels of palm kernel meal on the performance of growing and fertering yankasa rams". M.Sc. Ani. Sc., 1988.

116. MAISHAMARI, B.A "Effect of levels and sources of wheat offal on the performance of chickens" Ani.sc., 1984.

117. NELSON, F.S. "Replacement of maize in poultry rations with wheat offals and breads dried grains". M.Sc. ani.Sc., 1984.

118. NJOKU, P.C. "Influence of age, calcium, phosporus rigimen and strain on the performance and bone metablism of large white turkeyss" Ph.D. Ani.Sc., 1980.

119. NUHU, I. "Evaluation of cotton seed oil sludge as an energy source in broilers rations " M.Sc An. Sc., 1988.

120. NWACHI, A.G. "Effects of feeding level and Reazing method on sexual development in yankasa sheep" M.Sc. Ani.Sc., 1985.

121. NWAZOTA, A.O. "The effect of ascorbic acid, protein and energy levels on the performance of heat stressed laying chickens" M.sc Ani.Sc., 1985.

122. OBEKA, E. A. "Nutritive evaluation of rice offal in diets for growing pullets and layers" M.Sc. Ani. Sc., 1985.

123. ODUKWE, C.A. " Evaluation of Blood meal as major sources of lysine in lying chiken diets" M.Sc Ani Sc., 1985.

124. OFFIONG, S.A. "Evaluation of the nutritional value of full fat soybean for chickens" Ph.d Ani Sc. 1984.

125. OJABO, L.D. "Evaluation of dehydrated groundnut (Aradir hypogea) Haulm and BAOBAB Adansonia digitala leaf meals as EGG yolk pigments" M.Sc. Ani.Sci 1985.

126. OKEAGU, M.U. "Evaluation of nitrogen fertilized signal grass (BRANCHIARIA DECUMBEAN STAFF) Pastu... grazing" M.Sc Ani. Sc., 1981.

127. OKOYE.,F C. "Calcium and phosphorus requirement of growing yankasa lambs in the savanna region of Nigeria" M.Sc. An.Sc. 1980.

128. OLORUNJI, S.A.S. "Evaluation of Models for lactation curves for Bunaji friesian and friesan - Bunaji cross breed cows in Nigeria" M.Sc Ani. Sc., 1986.

129. ONI, O.O. "An Evaluation of factors affecting weights of growing beaf calves in Nig... Ani. Sc., 1986

130. ONIFADE, O.O. "Effect of seeding ration sowing methods and Nitrogen levle on the growth of Rwodes grass (chloris gayana CV callide)/stylo stylosanthes guianensis CV look) Mixture in Northern Nigeria". M.Sc. Ani. Sc. 1982.

131. ORSINTA, P.O. "Effect of dietary supplemenation of cotton seed cake and BONE meal on the reproductive performance of sheep in the savanna ecological zone". M.Sc. Ani Sc., 1982.

132. OSUHOR, U.C. "Effect of level of feeding on the performance and carcass characteristics of yankasa rams". M.Sc., Ani. Sc., 1991.

133. OYEYIOLA, L.B.F. "Utilization of rice offa by egg-type chickens" M.Sc. Ani. Sc., 1991.

134. PANO, P.B. "Study of factors affecting survival and fertility of chilled ram spermatozoa" M.Sc. Ani Sc., 1991.

135. SAMUEL, W.O. "Evaluation of sesame meal and seed in diets of broiler chickens" M.Sc., Ani. Sc., 1988.

136. SANTIAGO,F.V. "Replacement value of wheat offals for sorghum diets ot growing finishings swine in Nigeria". M.Sc Ani. Sc. 1987.

137. SEKONI, A.A. "The effect of feed restriction on egg type pullet development and subsequent egg production". M.Sc. Ani. Sc., 1987.

138. SHEHU, Y. "Production of grass/leg... ards" M.... ni. Sc. 1981.

139. TION, M.A. "The evaluation of some Nigerian limestone deposites as sources of calcuim for poultry" Ph.D. Ani.Sc., 1989.

140. TUKUR, H. M. "The effect of concentrate to Roughage rations on the performance of growing finishing beef cattle". M.Sc. 1985.

CROP PROTECTION

141. ABBA, A. "Investigation on Toxonomy, biology and control of the groundnut Aphid M.Sc. Crop Prot., 1981.

142. ABUBAKAR, Y.M. "Control of groundnut Rosette Virus and its Vector Aphid Cracivors Koch. M.Sc Crop. Prot., 1986.

143. ADEOTI, A.A. "The Biology and Control of conilla leaf spot of Kenaf Hibiscus cannabinus L. Induced by caniella musaiensis b. sutton Var Habisc B. sutton" Ph.D. crop Prot., 1991.

144. AKPA, A.D. "Studies on Bacterial Blight of sesame (sesame indicum L.) In Nigeria". M.Sc. Crop Prot., 1985.

145. ALIYU, A.B. "Studies on authra inose on sorghum and maize caused by Collectricum Gramiicola (ces) mils and on a midrib spot on millet". M.Sc crop prot. 1987.

146. ANOSO, A.B. "Studies on the foot and root disease of irrigated wheat in the northern states of Nigeria with emphasis on pathogenicity and paprophytic behaviour of causal fungi. M.Sc., Crop Prot. 1979.

147. CHIDOKA, C.S. "Aspect of Host preference of Bussela fusca (fuller) lepiodotra: Mectudae) on sorghum, maize and millet". M.Sc. crop Prot. 1980.

148. DADA, J.D. "Studies on fungi causing grain mould of soghum Vanietues in Nigeria". M.Sc. Crop prot. 1979.

149. DADA, J. "Analysis of fungal and Aflatoxin contamination of sorghum, millet and maize in the Nigeria savannah" Ph.D. Crop prot., 1988.

150. DANGORA, D.B. "The occurence and identification of ockra mosaic vions in drena lobata linn in Zaria Nigeria". M.Sc. Crop prot., 1987.

151. DIKE, M.C. "Insects Associated with Kenaf and Rosette in the Zaria area of Nigeria". M.Sc. Crop prot., 1983.

152. DOULI, P.O. "Host range and survival of Sphaceloina sp and its interaction with cowpea lines in Northern Nigeria. M.Sc Crop prot., 1983.

153. EKUKOLE, G. "Studies on the maize streale virus and its vectors" M.Sc. Crop prot., 1985.

154. HARIS, S. "Fungal pathogesis, associated with the cucurbit area in he Zaria environs". M.Sc.Crop prot., 1980.

155. IDOWU, A.A. "Distribution and characteristics of Northern Nigeria Root knol nematodes (meloidogynes) spp". M.Sc Crop prot., 1979.

156. IKHATUA, M.I. "Diseases of mango in the savannah zones of Nigeria". M.Sc crop prot., 1986.

157. ISHAKU, A.S. "Effect of partial pattern on abundance of insect. pest in a cereal -cowpea mixture". M.Sc. Crop prot., 1987.

158. JIDDA, M.B. "Studies on the control of leaf spot diseases of sesame (Sesamu Indicum L.) in Nigeria" M.Sc. Crop. prot., 1992.

159. JOHN, O.I. "The development of population of RHIZOPERTHA Dominica (Fabricus), Sitotoga ceraclella (oliver) and Setohilus species on stored sorghum and maize in three climatic zones of Nigeria". M.Sc. Crop prot., 1981.

160. MARLEY, P.S. "Fungal deterioration of some sorghum races under certain storage conditions" M.Sc. Crop prot., 1987.

161. NDEDU, S.B.J. "Fungicidal control of foliar diseases of groundnut in Samaru Northern Nigeria". M.Sc crop prot., 1986.

162. OKEKE, B.O. "Bionomics an control of the groundnut branchao. camperfon serratus oliver" M.Sc. Crop prot., 1986.

163. OKOLI, C.A. M. "Studies on the field and storage rots of tomato fruits in the Nigerian Savannah". M.Sc. crop prot., 1986.

164. OKONKWO, "M.J. The insect pest of stored pearl millet (pennisotun Amoricaum (L) K. Schum.) in Northern Nigeria. M.Sc Crop prot. 1983.

165. OLOJEDE, S.O. Transmission and population studies on maize streale virus rectors: Ciccadulina spp (Homoptera: (Cicadellidae) M.Sc crop prot. 1988.

166. ONU, I. Soil pests. Studies on groundnut M.Sc crop prot. 1982.

167. " " Bioccology ad control of sylepta Derogota (f) on cotton in Northern Nigeria Ph.D. Crop prot. 1990.

168. OIJI, C.N. Morphological, cultural and pathogenic variation in Tilyposporium pennicellarae bret. The casual agent of S mut of pearl millet in Nigerian Savannah. M.Sc Crop prot. 1985.

169. OZOLUA, K.O.O. Marphological cultural and pathogenic variation in colletotrichum Graminicola the incitant of anthrac nose of sorghum in Nothern Nigeria. M.Sc crop Prot. 1981.

170. PATRICK, O.O. Control of Insect pests of cotton in coton maize mixture. M.Sc Crop prot. 1986.

171. SADIKU, E.A. Studies on bacterial with carsed by psudomonas solanaearum M.Sc. Crop prot. 1981.

172. WOKOCHA, r.c. Studies on Scholtum Roffsii Sacc on Crop plants in Norhern Nigeria with special emphasis on tomato. Ph.D. Crop Prot. 1984.

173. ADUA, A.A. Studies on alternaria pom (E.11) Cit., Ilue casual organism of puple Blotch. Disease of onion Allium cepa L.) in Zaria environs M.sc Crop prot. 1986).

PLANT SCIENCE

174. ANASO, A.B. "Studies on the foot and root rot diseases of irrigated wheat in the northern states of Nigeria with emphasis on pathogenicity and suprophytic behaviour of casual fung" M.Sc. plant sc. 1979.

175. BODUNDE, J.G. "Effects of the environment on the performance of tomato (Lycopersiton esculentum mill) in the northern Guinea savanna of Nigeria". M.Sc. plant sc. 1987.

176. COLE, EGHAREVBA, R.K. "The effect of sed size and storage conditions on the germination and yield of onions (Allium ceppa L.)" M.Sc. plant sc. 1986.

177. ISMA, F. "Flowering and fruisat in tatasai pepper (Capsicum annum I.) as influenced by nitrogen nutrition and plant population" M.Sc. Plant sc. 1989.

178. LERE, G.A. "The effect of plant population and plant arrangement on the performance of maize (Zea mays L.) and Sorghum bicolor L. moench) in mixed crops". M.Sc. plant science, 1985.

179. OSUHOR, E.O. "Estimates of genetic perameters of fruit among some date palm (phoenix dastyliteru L.) types grown in Nigeria and their application in selection". M.Sc. Plant Science, 1983.

180. SURMA, D.A. "Effect of moisture stress on growth and yield of wheat (Triticum aestivum(L) Con Thell) M.Sc Plants Science, 1981.

SOIL SCIENCE

182. ABDULRAHMAN, S.I. "The use of organic wastes in the productivity of degraded soils in Northern Nigeria Savanna" M.Sc. soil science, 1989.

183. AGBU, P.A. "Reconncisance soil survey of part of Dange area of Sokoto" M.Sc. Soil Science, 1982.

184. AKINWA, O.A. "Characterization and classification of major Iris potato growing soils on the Jos Plateau". M.Sc. Soil Science, 1989.

185. AMANDE-KUR, S. "Evaluation of Boron status of some savannah soils using soil and plant analysis" M.Sc. Soil Science, 1983.

186. AMAPU, J.Y. "The response of soyabean (Glycine max (L) merr) to sulphur fertilization on selected soils of the Nigerian savanna" M.Sc soil Science, 1990.

187. AREMU, J.A. "Effect of different cultivation techniques on infiltration" M.Sc. soil science, 1979.

188. AROWOSHEGE, T.A. "Tra[illegible] and plant availability of Amide Nitrogen in selected savanna soil". M.Sc. Soil science, 1987.

189. AUDI, M.D. "Evaluation of methods of estimating available phosporus and phosporous requirements of some savanna soils". M.Sc. soil Science, 1987.

190. AWOJOOLA, A.I. "Soil tapping and characterization studies in the Zaria area, Nigeria". M.Sc. soil science, 1980.

191. BABAJI, G.A. "Some underlying reasons for changes in infiltration in soils of northern Nigeria". M.Sc Soil Science, 1982.

192. BABBADE, B. "The effect of irrigation frequencies on the soil movement and yield of wheat in savanna soil of Nigeria" M.Sc. soil science, 1980.

193. DATIRI, B.C."Effect of moisture stress at different growth stages on the performance and yield of wheat (Triticum aesticum)" M.Sc. Soil science, 1982.

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194. EBENMOSI, M. "A bio-clinosquence study of upland soils development on older granite in Nigeria". M.Sc. soil science, 1989.

195. ELKASED, F.A. "Magnesium status of the savanna soils of Nigeria, in relation to tobacco production" Ph.D Soil Science, 1983.

196. ESU, J.E. "Evaluation of soils for Irrigation in the Kaduna area of Nigeria". Ph.D Soil Science, 1983.

197. IDOGA, S. "The relationship of topography to soil and vegetation in the Northern Guinea ccosystem, Nigeria". M.Sc.soil Science, 1986.

198. IKECHUKWU, M. "Classification of sois as related to the growth of plantation tree species in the Nigeria Savanna". Ph.D Soil Science, 1988.

199. IWUAFOR, O.E.N. "Potassium status and the effect of lime on the availability of native soil potassium in some soil in Nigeria". M.Sc. Soil Science, 1979.

200. IWUAFOR, O.E.N. "The effect of tillage and crop residue management practices on soil properties and crop performance in the southern Guinea Savanna Zone of Nigeria." ph.D. soil Science, 1986.

201. KPARMWANG, T. "Effect of Soil chemical and mineralogical composition on sulphate adsorption and desorption in two Nigeria Soils". M.sc. Soil Science, 1987.

202. MACHIDO, D.A. "Effects of fungicide seed dressing on rhizobia modulation of groundnut (Arachis hypogea)". M.Sc. Soil science, 1989.

203. MALGWI, W.B. "A study of soils on the high plain of Husaland, Samaru Zaria, Nigeria" M.Sc. soil science, 1979.

204. NUHU, A. "Detailed soil survey of the seed multiplication farm at Kotangora,Niger State" M.Sc. (Soil science, 1983.

205. NWADUKWE, P.O "Rootgrowth and distribution of tomato (Sycopersican esculantum, C.V. Ife) as affected by irrigation frequency and watertype depths". M.Sc. soil socience, 1986.

206. ODEH, I.O.A. "A study of some salt affected soils in the Sokoto Rima Basin". M.Sc soil science, 1983.

207. ODINO, A.E. "Agrostatistical assessment of rainfall in the dry Savanna Zone of Nigeria". M.Sc. soil science, 1989.

208. ODUNZE, A.E. "Characterization of soils in various geomorphic units of Bakalori area in Sokoto State", Nigeria. M.Sc. soil science. 1987.

209. OJUOLA, O.O. "Soils and landforms of Bodinga, Sokoto State, Nigeria, M.Sc. soil science, 1987.

210. OMEJE, M.U. "Nitrogen supplying power of soils from lake chad Basin" M.Sc. soil science, 1981.

211. ONYEWOTU, L.O.Z. "Permeability of shelter belts to horizontal windflow" M.Sc. soil science, 1983.

212. PAM, S.G. "Correlation and caliberation studies for Zinc recommendation on mize (Zea mays L.) in some upland soils of northern Nigeria" M.Sc. soil science, 1990.

213. UGWU, I.O. "The properties, classification of geomorphic relationship of some soils of the Jos Plateau". M.Sc. soil science 1983.

214. UJAH, J.E. "Effects of shelter belts on soil moisture and temperature rejoice of soil at Danbatta (Kano State) Nigeria". M.Sc. soil science, 1982.

215. UYOVBISERE, E.O. "Phosphate uptake as related to extractable and inorganic phosphate fractions in some savanna soils of Nigeria. M.Sc soil science 1979.

FACULTY OF ENGINEERING

AGRICULTURAL ENGINEERING

212. ABUBAKAR, B.N. "Investigation of forced verification for grain conservation under local conditions" M.Sc. Agric Eng., 1983.

213. ABUBAKAR, S.Z. "Evaluation of check- Basic irrigation practice under Fadama conditions". M.Sc. Agric Eng., 1992.

214. ADEBAYO, A.N. The effect of vehicular traffic on oil physical properties crop growth and yield of mize (Zea mays) M.Sc. Agric Eng., 1984.

215. ADEOTI, J.S."Investigation of Inertia propulsion concept" M.Sc. Agric Eng., 1980.

216. ADEOTI, J.S "Rural transportation characteristics and their influence on design of appropriate transport devices" Ph.D Agric Eng., 1989.

217. ADEWUMI, J.K. "Irrigation efficiencies at Kadawa Sector of Kano River Basin". M.Sc. Agric. Eng., 1985.

218. ADOMU, J.Y. "Prediction of Advance and recession curves and design of a border irrigation system. M.Sc. Agric Eng., 1990.

219. AGU, T.C. "A budgeting technique for determining irrigation requirements and reserviour sizes on a probability basis" M.Sc Agric. Eng., 1984.

220. AHMODU, A. "Infiltration rates and related soil parameters to some selected Samaru Soils" M.Sc. Agric. Eng., 1982.

221. AJIBODY, V.A. " Design and constructin of solar powered refrigeration system for preservation of agricultural products". M.Sc Agric. Eng., 1986.

222. AKANI, A.O. " Evaluation of various designs of natural conrection solar dryers". M.Sc. Agric. Eng., 1990.

223. AMEOBI, J.S. "Design Fabrication and testing of a single row groundnut lifter" M.Sc. Agric. Eng., 1984.

224. BASHIR, D. "Estaimation of risks of Irrigation requirements for climatic data" M.Sc Agric. Eng., 1982.

225. EGHAREVBA, A.N. "Performance characteristics of selected centrifugal Irrigation pumps in Nigeria" M.Sc. Agric. Eng., 1986.

226. EKE, B.A. "Experimental performance evaluation of labaoratory and field solar and hybrids crop dryers." M.Sc. Agric. Eng., 1991.

227. ENABURAKHON, J.S. "Studies of the effect of shrouding on the volume distribution pattern ad droplet size distibution of two commercial C.O.A. (Herbicide)" M.Sc. Agric. Eng., 1981.

228. GANJI, D.A. "Modified manually operated maize sheller" M.Sc. Agric. Eng., 1986.

229. GWANI, E.S. "Design, Fabrication and testing of a manually operated sorghum harvester" M.Sc. agric. Eng., 1990.

230. GWARZO, M.A.S. "Capacitative performance study and optimization of power and machinery on a large scale farm" ph.D. Agric. Eng., 1990.

231. ITUEM, E.U.U. "A study of partial size and water absorption capacity of selected grains under wet grinding conditions" M.Sc. Agric. Eng., 1983.

232. IYA, S.A. "Design and evaluation of tomato transplanter" M.Sc Agric. Eng., 1992.

233. MADUBUIKE, C.N. "Parameter sensitivity analysis of selected evapotranspiration models under Nigerian conditions" M.Sc. Agric. Eng., 1984.

234. MOHAMMED, K.D. "Evaluation of irrigation performance under high water table" M.Sc. Agric. Eng., 1988.

235. MOHAMMED, U.S."A double cut concept: An aid for harvesting the tall variety of sorghum in Nigeria" M.Sc Agric. Eng., 1990.

236. NDIRIKA, V.I.O. "A system for rural storage of fresh tomato" M.Sc. Agric. Eng., 1992.

237. NWANDIKON, G.I. "Some Engineering properties of yam tuber (dioscorea spp)" M.Sc. Agric. Eng., 1984.

238. NWANGWU, A.C. "Prediction of urban runoff from time distribution rainfall using lizard dimensionless hydograph approach" M.Sc Agric. Eng., 1982.

239. NWUBA, E. I. "Human energy demand of selected agricultural tools" M.Sc. Agric. Eng., 1985.

240. NWUBA, E.I. "Selected physical and mechanical properties of cowpea as related to mechanical threshing of the entire plant host" Ph.D Agric. Eng., 1989.

241. OBI, S.E. "Design, construction and experimental evaluation of solar crop dryer system with heat storage unit" M.Sc. Agric. Eng., 1984.

242. OBIECHEFU, O.C. "Changes in shear strength and splash erodibility of soil due to long term fertility management under continuous cultivation". M.Sc. Agric. Eng., 1985.

243. OGUNESE, N.A. "Drainage specification for the Kano river (project area (Kadawa sector)" M.Sc. Agric. Eng., 1982.

244. OKE, B.O. "Selected engineering properties of two sorghum varieties (sorghum bicolor)" M.Sc Agric. Eng., 1983.

245. OKEOMA, M.I. "Effect of shear strength on soil detachment by raindrop impact". M.Sc. Agric. Eng., 1982.

246. OMOTOWOJU, J.S. "Evaluation of crop performance under water table conditions" .M.Sc. Agric. Eng., 1992.

247. ONWUJI, J.I. "The design and development of a multi operation cultivation machine". M.Sc. Agric. Eng., 1983.

248. OTEGBAYO, O.C. "Design criteria for bambo (Bambusa Vulgarm) used as field drainage material". M.Sc. Agric. Eng., 1982.

249. OYEBODE, M.Y.A. "Development of design procedure for border Irrigation system." M.Sc Agric. Eng., 1989.

250. SHEBI, J.G. "Tractive performance of three agricultural tractors". M.Sc. Agric. Eng., 1984.

251. WAGAMI, Y.S. "Selected Ergonomics studies of commonly used manually operated farm". M.Sc. Agric. Eng., 1983.

CHEMICAL ENGINEERING

252. ABUBAKAR, A.I. "Enhanced coalescence of emulsion in electric field". M.Sc. Chem. Eng., 1990.

253. ADELEYE, S.A. "Suitability of local clays for radioactive waste disposal. M.Sc chem Eng., 1989.

254. AHMED, K.S. "Development of phophate bonded fireclay refractory castables". M.Sc. Chem. Eng., 1986.

255. BUGAJE, M.I. "Solar powered amonia- water absorption Head pump for refrigeration and airconditioning application". M.Sc Chem. Eng., 1987.

256. NUMAH, S.N. "Evaluation of solar powered absorption Heat pump system for multipurpose application". M.Sc chem. Eng., 1987.

257. NUMAH, S.N. "Similation and optimization of solar powered Hybrid Heat pump system for cooling" ph.D. Chem. Eng., 1990.

258. OKONKWO, P.C. "Design construction and operation of a vertical shaft lme kilo". M.Sc. chem. Eng., 1991.

259. OPARA, C.C. "The optimization of alcoholic formation of sugar cane (Cane molasses)" M.Sc. Chem. Eng., 1983.

260. SAWHNMI, S. "Modification of gum Arabic. M.Sc. chem. Eng., 1990.

261. YAMMAMA, A.G. "Simulation of disolved oxygen in Kaduna river model construction and parameter estimation" M.Sc Chem Eng. 1985.

262 ZUBAIRU,A.K. "Study of the leaching process in the production of potash from dried plant tissue" M.Sc. Chem. Eng., 1991.

CIVIL ENGINEERING

263. ABARSHI, M.D."Use of Billet scales as filter in asphatic concrete" M.Sc Civil Eng., 1989.

264. ABDUL, U. "Computer-aided design for steel frame structure". M.Sc. Civil Eng., 1986.

265. ABDULLAHI, O. "2-way double layer space rod ad roof structure" M.Sc. Civil Eng., 1984.

266. AGILI,E. "2A study of round about mode of operation and performance". M.Sc. Civil Eng., 1981.

267. ALAYANDE, A. "Effect of support settlements on paired building". M.Sc. Civil Eng., 1983.

268. EZEATAH, V. "Unsymmetrical reinforced concrete colouns under small eccentricity of loading". Ph.D. civil Eng., 1991.

269. OJO, O.B. "Butiminous emulsion preparation of its amonic type using asyline" M.Sc. civil Eng., 1991.

270. OLASEHINDE, A. "Critical load of imperfect column with crookedness and edge cracks". M.Sc. Civil Eng., 1989.

271. ONYEWU, E.C. "Light loaded foundation failures at Sokoto investigation and solutions". M.Sc. Civil Eng., 1989.

272. SANDA, B.U. "Effectiveness of overlapping hoops ass ducuity reinforement in short reinforced concrete column". M.Sc. Civil Eng., 1989.

273. SHEIKH, B.M. "The behaviour and design of reinforced concrete short confillevers". M.Sc. Civil Eng., 1985.

274. TIJANI, A.B. "Appropriate transport modes for farmers in the rural areas of north eastern part of Nigeria" M.Sc. Civil Eng., 1988.

275. UCHENDU, P.E. "Performance of fly as filter in asphatic concrete" M.Sc. Civil Eng., 1990

276. UKPONU, S. "A comparativee evaluation of the fixed route and deviation strategies of operation in intra urban transit" M.Sc. Civil Eng., 1983.

ELECTRICAL ENGINEERING

277. ABDULMUMINI, Y. "Studies and optimization of reception condition of HF standard frequency and time signal in Kaduna" M.Sc Elect Eng., 1983.

278. [illegible]BI, G. "Diurnal and seasonal variations of meduim wave radio signal at Zaria". M.Sc. Elect. Eng., 1983.

279. CHINWENBA, N. "Shear resistance of reinforced concret beam: A case of welded [illegible]mesh [illegible]rrups" M.Sc. Elect. Eng., 1989.

280. EZEADUBU, O.N. "Groundwave reception and ground conductivity". M.Sc. Elect. Eng., 1982.

281. JIMOH, A.A. "Com[illegible] - aided design of a synchronous machine". M.Sc. Elect. Eng., 1980.

MUSA, I.A. "Prediction of power requirement for five northern districts". M.Sc. Elect. Eng., 1983.

283. OKAFOR, K.C. "Automatic generation and plots of root Loci" M.Sc. Elect. Eng., 1991.

284. OKPARANTA, U. "Computer simulation of the telephone system in the northern states of Nigeria". M.Sc. Elect Eng., 1990.

285. OWOLABI, A. "Headway modelling and applications". M.Sc. Elect. Eng., 1990.

286. OYEDOKUN, Z.O. "The design of a traffic director using the phases" M.Sc. Elect. Eng., 1980.

287. YUSUF, O.S. "Adequacy and reliability evaluation of the 330/132 KV Nigerian National power transmission network" M.Sc. Elect. Eng., 1986.

MECHANICAL ENGINEERING

288. ADEBAYO, S.M. "Factory planning for the production of improved design luver windows and door frame" M.Eng. (production Engineering), 1988.

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290. AGU, V. "Residual stresses in a welded mild steel butt joints" M.Eng. (production Engineering), 1983.

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292. ALIYU, A.A. "The study on the actual stress distribution on some members of statistically indeterminate beams: structural optimization with constraints on the actual stresses" M.ng. (Mechanical Enginneering), 1981.

293. ALIYU, A.A. "Linear elastic strains energy-release rate and the J. - integral ph.D (Mechanical Engineering), 1986.

294. ANIYI, J.A. "An investigation of the refractory properties of Kankara clay" M.Eng. (production Engineering), 1986.

295. AUDU, M.L. "The design of a rate -Gyro for use on land vehicles" M.Eng. (Applied mechanics), 1980.

296. AWONIYI, A.J. "The design and construction of a sola powered absorption regrigeration system" M.Eng. (Ref. & Air conditioning), 1980.

297. BABAAGBA, R.S. "Evaluation of some Nigerian vegetable oils as lubricants in deep drawing operations" M.Eng. (production Engineering), 1987.

298. BALA, J.J. "Solar eneergy collector design for rural refrigeration". M.Eng. (mechanical Engineering), 1980.

299. DARA, P. "Prospects of solar ice making" M.Eng (Mechanical Engineering), 1981.

300. DARE, A.B. "A comparator accessory for the autocollimato and a new Bore Gauge" M.Eng. (production Engineering), 1993.

301. GBADAMASI, I. "Hardenability response of Abadja St 60-2 structural steel quenched in fatty base local oils 2 M.Sc (production Engineering), 1992.

302. GUMA, T.N. "Non circular boring on the lather using hain drive for power transmission". M.Sc (production Engineering), 1992.

303. HASSAN, S.B., "The study of the refractory properties of some Nigerian days". M.Sc. (production Engineering), 1990.

304. IDRIS, D. "Design of gear drive for a milling machine". M.Eng. (production Engineering), 1986.

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305. JOHN,s. "Extrusion of non circular sections using round billets" M.Sc.(production Engineering), 1992.

306. JOLAIYA, S.O. "Design and construction of a longitudinal turning attachment for a single spindle automatic lather" M.Eng(production Engineering), 1988.

307. KOKAN, S. "Design of an air conditioning system for second and third floors of mechanical Engineering) Department of Building, A.B.U. Zaria" (Mech. Engineering, 1983.

308. KUCHIA, E.I. "Performance characteristics of cold storage under fresling conditions" M.Eng. (Mechanical Engnineering), 1980.

309. MAKAREEM, G.A. "The flexible shaft as a new power transmission for the grinding lathe attachment" Ph.D.(Mechanical Engineering), 1980.

310. MAKUNDI, D.E.N. "Use of finitie element method for in-plane stress analysis with a case study of selected automobile parts" M.Sc (production Engineering), 1990.

311. MORANA, A.R. "The assembly and performance characteristics evaluation of mineral processing plant" M.Eng. (production Engineering), 1986.

312. NDEM, E.B. "Prospect of utilization of wind energy for refrigeration and air condition system" M. Eng. (Refrigeration and air conditioning). 1982.

313. NSOFOR, E.C. "Design and construction of an air cooled solar powered refrigeration system" M.Eng. (Refrigeration and air conditioning), 1983.

314. OBI, A.I. "Theoretical and experimental investigations on self-excited machine tool chatter vibration M.Sc. (production Engineering), 1988.

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318. OKE, F.A. "Design and production of multi-spindle attachment to the universal lathe" M.Eng.(production Engineering), 1984.

319. OKE, W.S. "The corrosion behaviour of copper as a solar heat collector material" M.Eng.(production Engineering), 1987.

320. OKONTA, J.B. " Design of an air condition system for the new A.B.U. Bookshop samaru" M. Eng. (Refrigeration and air conditioning), 1982.

321. OLAREWAJU, A.D. "Effect of Tem Dering Time, NA_2CO_3 Addition and method of preperation on the properties of foundry moulding sands" M.Eng. (production Engineering), 1984.

322. OTEH, U.U. "Heat transfer in two phase flow in a region of sudden expansion" M.Eng. (Refrigeration and air conditioning), 1981.

323. OWOSHAGBA, J.O."Backward integration procedure for automobile manufacture in Nigeria (A case study of peugeot Automobile Nigeria)" M.Eng. (production Engineering), 1986.

324. OZIGI, Y.A. "Design and production of peugeot 504 Engine valves" M.Sc (production Engineering), 1988.

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328. HGWU, S.A. "Determination of stresses in a spur gear by means of photoelastic and numerical method" M.Sc (production Engineering), 1990.

329. WANIKO, S.F. "Investigation of some local oils for core binding" M.Eng. (production Engineering), 1982.

330. YUSUF, Y.Y. "Design and caonstruction of a starter mechanism for application in a two strike engine" M.Sc (production Engineering), 1991.

METALLUGY

331. YARO, S.A. "Hydrometalurgical recycling of lead acid battery" M.Sc. metallurgy, 1991.

332. ABDULRAHMAN, S.A. "A review of the survey laws and regulations of Nigeria" M.Sc Surveying, 1985.

333. ADAMINDA, I.J.K" Strength analysis and optimization of a part of Nigeria triangulation network" M.Sc. Surveying., 1981.

334. ADEYINKA, A.B. "New Bussa for optico-mechanical rectification procedures" M.Sc. Surveying, 1981.

335. AKINWALE, A.J."Comparative analysis of U.T.M and Lambert conformal council projection for Africa" M.Sc. Surveying., 1987.

336. ALFONCE, L.R. "Stability of bench marks" M.Sc. Surveying., 1980.

337. ANTHONY, O.N. "Calibration of Zeiss PK-1 manocomparator" M.Sc. Surveying, 1987.

338. EKOCHE, P.A. "Compilation of cadastral controls Katsina township". M.sc. Surveying., 1987.

339. EMMANUEL, E.I. "An evaluation of the mines field survey of Jos plateau". M.Sc. Surveying, 1989.

340. EUGENE, O.O. "Practical accuracy of semi analytical aerotriangulation with the wild A7 autoraph using an optimum perspective centre determination". M.Sc. surveying., 1983.

341. FESTUS, R.A.A. "A review of cadastrel surveying in Nigeria since the abolition of the counter signature". M.Sc. Surveying., 1986.

342. HARUNA, A.A. "Qualitative technique of remote sensing in land cover investigation over a test area in the Sakana" M.Sc. Surveying., 1987.

343. IFEANYI, J.W. "Compilation and examination of cadastral control system in Kaduna state: Funtua, Dutsinma and Kankiya township. A case study" M.Sc. Surveying, 1987.

244. INNOCENT, F.C.E. "A data base system for the Nigeria first order trangulation records". M.Sc. Surveying, 1983.

345. IYALLA, M.I. "Observational criteria and statistical analysis of a small gravimetric network" M.Sc. Surveying, 1988.

346. JACOB, N.A. "Photointerpretation of land cover and slope facets in Southern Zaria" M.Sc. Surveying, 1987.

347. MATHEW, A.O. "The comparison of speed, ost and accuracy of traversing using EDM, ODM and steel tape" M.Sc. Surveying, 1987.

348. MBUKABIATAMA, B.E. "A study and analysis of the geodetic levelling of Nigeria". Ph.D. Surveying, 1981.

349. MOHAMMED, U.N. "Demarcation and land t survey of a Dam reservoir for compulsory acqu n" M.Sc. Surveying, 1987.

350. MOSES, O.O. "Diurnal, seasonal and topographical effects on vertical reflection". M.Sc. Surveying, 1987.

351. MUSA, A.A. "A comparison between "The least-squares" and "the Bow Ditch" methods of transverse adjustment". M.Sc. Surveying, 1989.

352. MUSTAPHA, A.A.Y. "The effect of the accuracy relative orientation of aerottriangulation by independent models". M.Sc. Surveying, 1986.

353 NATHANIEL, A.O. "The use of transects in land use surveying from aerial phoograph" M.Sc. Surveying, 1989.

354. ODUMU, J.A. "Monitoring land use changes in Makurdi Benue State capital" M.Sc. Surveying, 1988.

355. OGUNDADU, J.A."A review of areas and volume in earth works" M.Sc. Surveying, 1987.

356. OKOH, N. "Calibration of Zeiss PK-1 monocomparator" M.Sc. Surveying, 1987.

357. ONUORAH, F.K. "Practical occurencies of numerical relative orientation on the wild A7 autography" M.Sc. surveying, 1987.

358. SAIDU, A.A. "Adjustment of Ilorin base extension trangulation network" M.Sc Surveying, 1986.

359. SUNDAY, P.E. " Sampling of land use from large scale arial photographs" M.Sc. Surveying., 1988.

360. SUNDAY, P.O. "Developing statistical programs on micro computer for surveying data analysis" M.Sc. Surveying., 1988.

361. UMAR, A.S. " Cadastral surveying in Sokoto State" M.Sc. Surveying., 1986.

362. VICTOR, O.N. "Comparison of survey practise and procedures in plateau and rivers state of Nigeria" M.Sc. Surveying., 1989.

WATER RESOURCES AND ENVIRONMENTAL ENGINEERING

363. AIKA, W. "Performance characteristics of Kaduna River basin sand as filter media" M.Sc. Water Eng., 1981.

364. AMUSAN, T.A. "Treatment of textile waste water using stabilization ponds" M.Sc. water Eng., 1992.

365. ANTHONIO, O.C. "The use and performance of fish for polishing effluent from waste stablization system". M.Sc. Water Eng., 1986.

366. BABAJI,I. "Floor over an indine weir" M.Sc. water Eng. 1985.

367. BELLO, M. "The effect of using coarse media as against fine media in slow sand filtration" M.Sc. water Eng., 1986.

368. CHUKURAH, A.M. Waste water irigation: Some bacterial and Helminthological effects". M.Sc. water Eng., 1989.

369. DAHIRU, M. "Some heavey metals in plants irrigated with sewage effluents" M.Sc. water Eng., 1989.

370. DAUDA, A.H. "Estimation of the effect of irrigation on annual recharge at the Kano project area of Kano River basin" M.Sc. water Eng., 1991.

371. EMMOABINO, I. "Performance characteristic of the critical depth long throated flume". M.Sc. water Eng., 1986.

372. GABRIEL, J.B. "The treatment of tannery waste water by waste stablization pond" M.Sc. water Eng., 1980.

373. GUBIO, M.K. "Stepped spillway model investigative study". M.Sc. water Eng., 1990.

374. ISIOLAOTAN, K.O."Optimum performance of a battery of wells using a computer simulation model" M.Sc. Water Eng., 1987.

375. JIMOH,O.D."Evaluation of the performance of water distribution system in Kano River project" M.Sc. Water Eng., 1991.

376. KILANI, J.S. "The performance of baffled facilitative stablization ponds". M.Sc. water Eng., 1981.

377. LEBBE, S.A. "Application of the linear theory method on Ahmadu Bello University water distribution network". M.Sc. Water Eng., 1988.

378. MBAJIORGH, C.C. "Bridge pier protection against local scour" M.Sc. Water Eng., 1985.

379. MUSA, N.S. " Estimation of stream flows in the upper benue river basis using climatic budget method". M.Sc. Water Eng., 1986.

380. NWINGWE, N.E. "The treatment of poultry waste by means of waste stablization ponds". M.Sc. Water Eng., 1992.

381. OKUKWU, C.S. "An Investigation of the characteristics of oblique linear and labyrinth sharp-ceated weirs. M.Sc. Water Eng., 1989.

382. OLANREWAJU, M.O. "Mining characteristics and performance of stablization ponds" Ph.D. Water Eng., 1987.

383. OLU, A.E.O. "Estimation of direct recharge of the upper zone aquifer of the Lake Chad Basin" M.Sc. Water Eng. 1985.

384. OLUKATON, T.O. "Algae removal by chemical coagulation" M.Sc Water Eng., 1983.

385. ONUOHA, C.B.J. "Performance study of the wase stablization pond system at Ahmadu Bello University, Main Campus Zaria". M.Sc. Water Eng., 1981.

386. PIRZADO, M.Z. " Estimation of useful life of Zaria Dam (Galma reservoir) Kaduna state Nigeria" M.Sc. Water Eng., 1978.

387. RAFINDADI, A.N. "Non-Linear analysis of see page into drains" M.Sc. Water Eng., 1987.

388. SALAU, O.B.E. "Analysis of the variations in some meteorological elements pertinent to air pollution prediction". M.Sc. Water Engineering., 1992.

389. SIEDOMA, L. "Setting characteristic of Kubani Dam water" M.Sc. water Eng., 1990.

390. TAIWO, O.I. "Control of water levels inrrigation canals using automatic gates" M.Sc. water Eng., 1978.

391. TOMORI, I.O. "Treatment of abbatoir water using an anaerobic waste stablization pond" M.Sc. water Eng., 1990.

392. WATHLARDA, A.J. "Design of stable alluvial channels" OM.Sc. Water Eng., 1988.

393. YUNUSA, Y. "Local scour phenomenon downstream of a sharp - crested weir". M.Sc. water Eng., 1987.

394. ZINAS, R. "The suitability of Yola and shelleng sands as filter media. M.Sc. water Eng., 1990.

FACULTY OF MEDICINE

CHEMICAL PATHOLOGY

395. ANAJA, H.P. "Significance of red cells 'sorbitol assay in diabetics control and compilations" Ph.D. chemical path., 1991.

PATHOLOGY

396. GUPTA, R. "Polymorph function in patients with palmonary tuberculosis, sickle cell diseases and neonatal septilaemia and its relation to cell medicated immune function . M.Sc. pathology., 1992.

397. SULE, B.M. "Peripheral blood pressure T. lymphocytes in leprosy" M.Sc. pathology., 1987.

PHYSIOLOGY

398. ADELAIYE, "A.B. Comparative study of gastrin in some animals in northern Nigeria". Ph.D. physiology., 1991.

399. ESSIEN, E.S. "Quantitative significance of bacterial index indicative of faecal pollution of water" Ph.D physiology., 1980.

400. ISAAC, S.A. "Neurophysiology" M.Sc physiology., 1987.

401. MAHARAJAN G. "Thyroid studies in normal subjects and certain and non thyroidal illnesses in Nigeria". Ph.D physiology. 1982.

FACULTY OF MEDICINE

MEDICINE

402. HASSAN - KING, M.K.A "A radioloabelled assay for measuring bactericidal activity against menigococci and pneumococci". Ph.D medine., 1992.

MICROBIOLOGY

402. BELLO, C.S.S. "Cytomegolovirus infection in the Gambia. Ph.D medical microbiology, 1984.

403. DIALLO, A.A. "Public health significance of leptospriosis in northern Nigeria" Ph.D microbiology., 1979.

FACULTY OF PHARMACEUTICAL SCIENCES

PHARMACEUTICAL AND MEDICINAL CHEMISTRY

404. ADAMU, Y. I. "Effect of Tamurindus indica and sodium potassium Hausa salt on the bioavilability of Asprin in man" M.Sc Pharm. med. chem., 1992.

405. AFOLABI, K.O. "Synthesis and pharmacological screening of compounds related to quninzoline alkaloid.vascine. M.Sc. pharm. & med. chem., 1982.

406. BAKARE, N.T. "Bioavailability and pharmacokinetic slides of brands of paracetamol dosage forms" M.Sc. pharm & med. Chem. 1987.

407. BAKO, H.F. "Isolation, identification and pharmacological screening of the alkaloids of the leaves of synclisia scarbrida Neirs" M.Sc pharm. chem., 1986.

408. EDAFIOGBO, I.O. "synthesis and some pharmacological properties of some N-cyclic imides". M.Sc pharm & med. Chem., 1980.

409. ELMAKABY, Z.S. "Studies of the stability of chloroquine and paraquanil" M.Sc pharm. & med. chem., 1982.

410. HARUNA, A.K. "Isolation, identification and pharmacological screening of the bark of cussonia bancoensis Aurev and pellegr" M.Sc. Pharm. & med. chem., 1988.

411. NWOKOYE, V.C. "Assay and dissolution rate studies otor different brands of tetracycline hydrochloride capsules" M.Sc pharm. & med. chem., 1986.

412. OGUNLEYE, D.S. "Preliminary study of metabolism of tramadol in man, rabbit and rat" M.Sc.pharm. & med. chem., 1986.

413. OJO, B. "Synthesis and biloical activities of quinazoline derivatives and vasicine" M.Sc. pharm. & med. Chem., 1986.

414. OKENIYI, S.O. "Stability studies and influence of low fatmeal on the pharmacokinetics and bioavailability of nifedipine in healthy valunteers" M.Sc. pharm. & med. chem. 1992.

415. TOR-ANYIIN, S.T.A. "Synthesis of 9 amino 6,7 - benzomorphan as a potaential analgesic" M.Sc pharm. & med. chem., 1988.

416. UKO, N.O. "Effect of ultraviolet radiation on the stability of proguanil and pyrimethamine" M.Sc pharm. & med. chem., 1985.

417. UZAMA, D. "High performance liquid chromatographic determination of paracetamol, chloroquine and promethazine in some pharmaceutical preparations" M.sc. pharm. & med. chem., 1991.

PHARMACEUTICS AND PHARMACEUTICAL MICROBIOLOGY

418. AJIT, V.D. " Formulation and dissolution of studies of chloropropamide by dispersion techniques, Ph.D. pharmaceutics, 1984.

419. AKADE, M.A. "Dissolution rate and bio availability study on new nitrofurantoin formulation" M.Sc. pharaceutics, 1985.

420. ARHYEL, H.B. "Evaluation of cissus populrea bark as a tablet binder, emulsifying and suspending agents" M.sc. pharmaceutics, 1991.

421. BUDAYE, B.J. "An evaluation of cassava starch as excipient for Dextro - methopene hydropromide granules and tablets" M.sc. pharmaceutics, 1990.

422. EL-MAMHMOOD, A.M. "The antibacterial properties of liquid antiseptics T.C.P" M.sc. pharmaceutics, 1988.

423. EMENIKE, I.V. "Dissolution rate and bioavailability studies on sustained release cop recepients of ampicilin tryhydrate" M.sc. pharmaceutics, 1986.

424. GARR, J.S.M. "Tableting properties of Sorghum starch" M.sc. pharmceutics, 1988.

425. IGODO, O.J. "Enhancing dissolution rate of phenylbutazone and oxy-phen-butazone via the solid dispension technique" M.sc. pharmaceutics, 1988.

426. ISIMI, C.Y. "Evaluation of trunigia Gabonesis mucilage as a suspending Emalsifying and Binding agent" M.sc. pharmaceutics, 1990.

427. JAMIU, O.S. "The effect of subminimum inhibitory concentration of reciphin (R) on two isolates of pseudomonas aeruginosa" M.sc. pharmaceutics, 1988.

428. JOHN, I.A. " The effect of solvent composition on the kinetics of deacylation of lecittin M.sc. pharmaceutics, 1985.

429. JOSIAH, A.O. "comparative activities of the Glycoside antibiotics with special reference to Amikacin,. M.sc. pharmaceutics, 1981.

430. OGABOR, O.F. "Preparation and dissolution studies of solid dispension of poorly soluble hypoglycaemic agent acetohyexamide" M.sc. pharaceutics, 1983.

431. OLUTAYO, S.S. "Evaluation of Nigerian Acacia and Acacia siberiena Gums as a suspending and emulsifying agent" M.Sc. pharmaceutics, 1992.

432. OYI, A.R. "preparation, dissolution rate formulation and ageing studies of clibenciamide solid dispersion" M.Sc. pharmaceutics, 1989.

433. MUSA, A. "The effect of temperature fluctuation in the tropics on the visco elastics properties of clotrimazole (antifungal) cream base" M.Sc. pharmaceutics., 1983.

434. PATRICK, O.O. "Comparative studies of five cephalosporin antibiotics against Escheria coli staphlococcus Aureus and pseudomonas Aeruginosa" M.Sc. pharmaceutics, 1985.

435. SANI, M.G. "Formulation and dissolution studies of trimethroprim by dispersion techniques M.sc. pharmaceutics, 1988.

PHARMACOGNOSY AND DRUG DEVELOPMENT

436. ABDULRAHMAN, E.M. "phytochemical and biological studies of the bank of sclerocarya billea (A-Rich) Hochst". M.sc. pharmacognosy, 1986.

437. IBRAHIM, H. "Pharmacognostics and evaluation studies of the stem bark of cissues populnea Guill and Perr" M.sc. pharmacognosy, 1990.

438. NUHU, D.H. "Comparative pharmacognostic studies of three Nigerian Datura species" M.sc. pharmacognosy, 1989.

439. RAI, P.P. "Authrance derivatives in tissues culture of some Nigerian cassia species" Ph.D. pharmacognosy. 1983.

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PHARMACOLOGY AND CLINICAL PHARMACY

440. ABDU-AGUYE, I, Some pharmacological studies with water and ethanol extracts of momorchica charantis" M.sc. pharmacology, 1985.

441. ABUBAKAR, A.A. "Studies of promethazine hydrochloride on the absorption of chloroquine phosphate in rats" M.Sc. Pharmacognosy, 1985.

442. AMOSUN, S.L. "Some neuromoscular effect of the crude extracts of the leaves of Abrus precatorius" M.sc. pharmacology, 1982.

443. BODHAMKOL, S.L. "Effect of some soronergic agents on rectal temperature of cellus domesticus". Ph.D. pharmacology, 1984.

444. DEDE, E.B. "The effect of pre-exposure to lindque on dichlordos toxicity in nitro and in hino" Ph.D. pharmacology, 1992.

445. GAMANIEL, K. "Influence of levalupa apomorphine and 3,4 dehydroxy, phenyldorine on strychnine and leptazol scisures in mice" M.sc. pharmacology, 1984.

446. IRIAH, I.J. "phytochemical and pharmacological studies of alkaloid of leaves of syndisia seabrida micers" M.sc pharmacology, 1980.

447 KOLAWOLE, S.O. "Effect of cowpea and its possible interaction with alphanothldoph on the heart rate and blood pressure of hormotensive and spontoneously hypertensive rats" M.Sc. pharmacology, 1980.

448. LAHAN, G. "Anticonvulsant properties of ethyl-N-phythalimidoxy acetate". ph.D. pharmacology, 1979.

449. MIDALA, T.S. "Urine sensitivity of plasmodium falciparum to chloroquine in Zaria Nigeria" M.sc. pharmacology, 1986.

450. MIDALA, T.S. "Quality assurance testing of chloroquine in northern Nigeria" ph.D. pharmacology, 1992.

451. OGOAZI, N.O. "Effect of some dopaminicergic agents on pantaborbitene and fliminitronopam sleep in mice" M.sc. pharmacology, 1985.

452. OSUNIFISAN, E.O. "Roles of the nenomines in the anticonvulsant action of diarepam" M.Sc. pharmacology, 1965.

453. PANINGA, B.J. "Some anthelminic and other phamalogical action of chiethyl ether of extracts of seeds of carica papaya citrus." M.Sc. pharmacology, 1986.

454. SALAWU, O.A. "Blood levels of phenytein in epileptic patient" M.Sc. pharmacology, 1984.

455. SHEIKA, L.T. "Bioavailabiality studies and chemical assay on three brands of metromidazole tablets" M.Sc. pharmacology, 1992.

456. SOKOMBA, E.N. "Some studies on drug induced behaviour in young chicks" ph.D. pharmacology, 1980.

457. WAIHA, B.B. "The effect of short form chosoprophlexin" M.Sc. pharmacology, 1987.

468. WAMBEBE, C.O. "Studies on some control effect of injected dopamine in young checks" ph.D. pharmacology, 1979.

469. WAZIS, C.M. "Preliminary pharmacological screening of some crude extracts of Byrsocorgnia coccinecus schum and thorn (family cannaracae) lacaves" M.Sc. pharmacology, 1987.

FACULTY OF SCIENCE

BIOCHEMISTRY

470. ACHOBA, I.I.A "Studies on the shelf life of locally made corn chips" M.Sc. Biochem., 1987.

471. ADEWALE, O.O. "The malting and breaking potential of a local variety of pearl milet (penniselum Typhoides)" M.sc Biochem., 1991.

472. AKINSANYA, A.A. "A comparative evaluation of the antimicrobial efficacy of some sulphur dioxide-generating salts in liquid media". M.Sc. Biochem, 1983.

473. AYODEJI, A.M. "Comparative capsalim content of some capsium species grown in northern Nigeria" M.sc Biochem., 1984.

474. CHIDOZIE, O.P. "Biochemical studies on the meat quality and digestive enzymes of double - spurred franolin (Francolins Biiclaratus)" M.sc. Biochem., 1988.

475. CHUKUJEKWE, B.M. "Comparativce biochemical studies of a an Analyse from malted sorghum (Sorghum vulgare) and pear miliet (pennisetum typhoides and micro-organism" M.Sc. Biochem., 1991.

476. EDOH, C.E. " A survey of the aflatexin and nutritional status of some locally processed and marketed poultry feeds" M.Sc. Biochem., 1985.

477. HARUNA, A. "malting and brewing potential of a local variety of sorghum (Sorghum Bicolor L. Moench)" M.sc Biochem., 1991.

478. IBIAM, G.E.N. "Relationship of Aflatoxin and knwashiokor: A Study of underfives in Nigerian" M.sc Biochem., 1956.

479. IBRAHIM, S. "Isolation partial purification and characterization of limariarase from fusaruim Equiseti" M.Sc. Biochem., 1986.

480. ISAAC, E.G. "Purification and some properties of acid prophatase (EC 3.1.3.2) from white yam Dioscorea protundada tubers" M.sc. Biochem., 1956.

481. JAMES, I.E. "Analysis of some trace metals in some raw and processed food" M.Sc. Biochem., 1990.

482. JIMOH, K.E. "The use of some Biochemical parameters in the study ofphysiological changes associated with pregnancy in sheep" M.sc Biochem., 1987.

483. KAOJE, A.M. "Purification and some kinetic studies on hexokinase from water yam (Discorea Alata) tubers M.sc. Biochem., 1988.

484. LAKSHNIANAN, C.R. "Biochemical studies of wound response in white yam Discores Rotundata pow (tubers" M.Sc Biochem., 1987.

485. MAKUN, H.A. "Analysis of trace metals total lipids and cholesteral level in blood of Ajaokuta steel workers" M.Sc. Biochem., 1991.

186. MANSUR L. "In Vitro studies of the haemolytic effect of suya condiments on human red blood cells" M.sc Biochem., 1987.

487. MBADIWE, P.U. "cost of transfer of technology: A case study of soft drinks industry in Nigeria". M.sc Biochem., 1984.

488. NOK, A.J. "Purification and some Kinetic studies on malate delydrogenase from white yam (Dioscoea Rotundata (tubers" M.sc Biochem., 1988.

489. NWOKE, U.N. "Biochemical studies on the prevalence of typical pseudochointerase in normal subjects and patients with sickle cells disease in Zaria area" M.sc. Biochem., 1983.

490. OGBADOYEI, E.O. "Studies on the resistance of host lost red blood cells to trypanosoma vovax phosphlipase". M.sc Biochem., 1988.

491. OGBUNUDE, P.O.I "Altanate pathways of purine metablism in some African tryponosomes" ph.D Biochemistry., 1983.

492. OGUNDU, E.C. "Some Biochemical and environmental factors affecting linamarase production by aspergillus sydowi and fusarium equieti" M.Sc. Biochemi., 1984.

493. OKEOMA, J.C. " Comparative analysis of "Dawadawa" with commercial synthetic flavour enhancer" M.sc. Biochem., 1984.

494. OKONKWO, C.A. " Methrin in rats using Biochemical texts" M.Sc. Biochem., 1991.

495. OLUGBOJI, O.O. "Biochemical studies on the cynaide content of malted sorghum (Sorghum bicolor LMoench) and sorghum products and the fate of sorghum. dhurim in the rat" M.Sc. Biochem., 1987.

496. OMAGIE, J.J. "Intricton of mammary turmour in Albino rats by 7,12,D1 mehtyllen 2(a) authracene suspended in two vegetable oils". M.Sc. Biochem., 1990.

497 ROSEL, A. "Compositional charges of developing local wheat grams" m.sc biochem., 1990.

498. SWAMINATHAN, V. Studies of vitamins E seleniun and plasma liquids in healthy and diseased human subjects of the Zaria region" M.Sc. Biochem., 1984.

499. TERRY, D.E. "B-Glucosidase from sorghum (Sorghum bicolor L. Moench) and its use for assaying dhirrin in sorghum and sorghum products". M.Sc Biochem., 1989.

500. UKPABI, J.U. "Effects of storage on the constancy of the electrophoretic patterns of soluble proteins of some yam species and cultivers M.Sc. Biochem., 1983.

BIOLOGICAL SCIENCES

501. AGINA, m.i. "Aspects of mineralization in the skin of the great capra Hircus (L) of Zaria Nigeria". M.Sc. Zoology., 1983.

502. AJAKAIYE, C.O. "Biochemical and physiological studies on the three genotypes of sorghum. Sorghum bicolor (L.) moench in relation to soil nitrogen level" Ph.D. Botany., 1980.

503. AKEN'OVA, T.O.L "Gill parasites of clavias species in the Zaria" area. M.Sc Zoology (parasitology), 1983.

504. ANASO, H.U. "Cytological and genetical studies in the genus solannum". M.Sc Botany, 1982.

505. ANENE, C. "The historical anatomy and physiology of the reproductive organs of the female brown and green polymorphs and Dedelens senegalensis

506. ANYAM, R.W. "Some aspects of the fresh water ecology of two man-made lakes near Zaria, Nigeria" M.Sc. Biological sciences., 1980.

507. ASIMENG, E.J. "Taxonomy and distribution of philebotomine sandflies in northern Nigeria". Ph.D Biological Sciences. 1985.

508. AWANDA, C.O.A. "Industrial effluences on the Biota of river Kaduna" Ph.D Biological sciences. 1985.

509. AYOMIKE, B. "Aspects of the chemical concentration of trinervietermes Germinatus washman (Isoptera: termitidae: nasutitemitinae) and its food materials" M.Sc. Zoology Biological science. 1979.

510. BRIAN, O.G. "Toxicity of treated effluent from Nigeriaan National petroleum corporation refinery kaduna on Tilapia Niiotica (L.)" M.Sc Environmental pollution". Biological science. 1986.

511. CHARLES, A.N. "The effect of feeding cocoyam and Guinea corn supplemented with groundnut and snail shell on growth, food conversion ratio and reproduction in laboratory rats" M.Sc.educational Biology. 1983.

512. DANBAKI, J.J. "A survey and analysis of problems associated with establishing and maintaining botanical gardens in some part of Nigeria" M.sc. Educational Biology. 1983.

513. DAWODU, M.O.D. "Evaluation of the nutritional quality of Corchorus Oleetorius (L.) and sesamum orientale(L.) as affecteed by nitrogen fertilization" M.Sc. Educational Biology. 1987.

514. EGA, R.A. "Potential of cocoyam, cassava, locust bean and tamarind as carbohydrate and protein sources in animal feed". Ph.D. Biological Sciences. 1986.

515. HARUNA, O.E. "Growth and nutrient utilization in oreochroms nitoticus fed spirogyra in the diet" M.sc. Educational Biology. 1987

516. IDEOZU, E.A. "A study of relative abundance of different species of adult mosquitoes in Samaru, Kaduna state" M.Sc. Zoology, 1987.

517. IMAM, A.Y. "Effect of nutrient difeciences on leaf bulb and root characteristics in the cultivated Onion (Aluim cepah)" M.Sc. Educational Biology, 1984.

518. IORTSUUN, D.N. "Assimilation, translocation and growth in some Onion cultivars" M.Sc. Biological Sciences, 1981.

519. KAPU, M.M. "Zinc and Copper in sympton free Nigerians, those with sickele cell disease and other pathological conditions" Ph.D Biological Sciences, 1979.

520. MBAH, C.E. "Identification of some aquatic insects in selected parts of northern Nigerias" M.sc. Zoology, 1987.

521. NDAMS, I.S. "Attraction of tsetse flies to experimental targets" M.Sc. Zoology, 1987.

522. NWUBA, L.A. "Organization of a Zoological museum in a secondary school" M.sc. Educational Biology, 1983.

523. OFFEM, B.O. "Toxicity and residue accumulation of lead in some fish and invertebrates" M.Sc. Fisheries Biological Science, 1983.

524. OFFOR, I.I. "A study of contact sex hormone in some Glosine species". M.Sc. Biological Science 1981.

525. OGUNTAYO, F.B. "A study of the authropod Fauna of some Samaru stream Zaria, Nigeria". M.Sc Zoology Biological Science, 1987.

526. OKEZIE, N.O. "Studies on the physical parameters skin composition and leather quality of Zaria goats Cappa Hircus". M.Sc Biological science, 1983.

527. OKWARA, O.K. "Population, Biology and feeding habits of common land snails Limicolaria flammea and Limicoria Aurora" M.Sc Educational Biology, 1985.

528. OKWULECHIE, C.I. "Anatomical and physiological changes in groundnut (Arachis hypogea L.) due to infection with macro phonia phastol (maub) Ashby" M.Sc. Botany, 1984.

529. OLAGUNJU, E.O.E. "Study of cattle pess and their histopathological effects on hides in the Zaria area" M.Sc. Zoology, 1987.

530. RUFUS, O.T. "Toxic effects if sublethal concentrations of toad on Islapia niliotica (Linnaeus)" M.Sc. Educational Biology, 1985.

531. SANGOWAWA, B.G. "Cytological studies in some wild tuber - bearing solarum" Ph.D. Biological Sciences, 1983.

532. SEKAR, V. "Studies on the uredinales occuring in and around Zaria" M.Sc. Biological Sciences, 1984.

533. SHEHU, H. "Laboratory studies on the effectiveness of Bacillus Thuringiensis serotype H-14 against culex pipiens larvae. M.Sc. Zoology, 1986.

CHEMISTRY

534. ABDULLAHI, M.O. "Comparative studies of some non-carbonated soft drinks" M.Sc. Analytical chemistry, 1984.

535. ABBI, T.A.A. "Development of surfactant improved spectrophotometric methods of determining trace quantities of molybdenum and copper" Ph.D. Analytical chemistry, 1988.

536. ABOHO, S.Y. "Chemical analysis of some commercial wipes" M.Sc. Analytical chemistry, 1984.

537. ADEGEJE, M.I. "Preliminary chemical analysis of shea butter trace Butterosperum park latex". M.Sc. Analytical chemistry, 1983.

538. ADEKANYE, B. "Variation of heavy metal pollutant concentration with plants soil and water". M.Sc. Analytical chemistry, 1984.

539. ADESODUN, E.Y. "Analysis of lead in commonly used cyliners and associated blood lead changes" M.Sc. Analytical chemistry, 1984.

540. AGBU, A.A. "Chemical analysis of well water in Zaria city". M.Sc. Analytical chemistry, 1984.

541. AJIBOLA, V.O. "Comparative study of wet digestion methods of sample preparation for elemental analysis" M.Sc. Analytical chemistry, 1984.

542. AJIME, V.I. "Analysis of some animal kaduna stuffs. M.Sc. Analytical chemistry, 1983.

543. AKO, P.A. "Analysis of "KANWA" samples for some anions" M.Sc. Analytical chemistry, 1984.

544. AKPATA, M.I. "Synthesis of thiol Esters" M.Sc. Organic Chemistry, 1988.

545. ALARIBE, H.C. "Chemical analysis of well water in Samaru, Zaria". M.Sc. Analytical chemistry, 1984.

546. ALWAN, K. "Analytical studies of 5-alkyl quaternary salts". M.Sc. Analytical Chemistry, 1984.

547. AYO, R.G. "Oxidative reactions of orthahydroxyphenylketones with thallium (iii) Trioxonitrate (v) trihydrate" M.Sc. Organic chemistry, 1989.

548. CHUKWUKELUE, E. "Effects of pollutional discharges on Kaduna river water quality" M.Sc. Analytical chemistry, 1983.

549. DAUDA, A. " Chemical pollution of river Romi Kaduna M.Sc. Analytical chemistry, 1988.

550. DUROTIMI, O. "Surfactant improved spectrophotometric determination of some metals. M.Sc. Analytical chemisty, 1983.

551. EKOP, A.S." Chemical composition of avolado fruit. M.Sc. Analytical chemistry, 1983.

552. EKPETE, B.U. "Chemical analysis of bannana(Musa paradisiaca sapientum): A study of compositional changes from materation to ripenning" M.Sc Analytical chemistry, 1985.

553. FADIRAN, A.O. "Factors in the determination of sodium, calcium iron and copper in some animal products" M.Sc Analytical chemistry, 1983.

554. GANA-ABBA, U. "Chemical analysis of some spring water" M.Sc Analytical chemistry, 1986.

555. GIMBA, E.C. "Comparative studies on induced and outdoor weathering of some polymers@ M.Sc Polymer Science and technology, 1987.

556. HABU, A.I.F. "Standardization of wet digestion procedure for the determination of some elements in seeds leaves and soils". M.Sc chemistry, 1986.

557. IBHADON, A.O. "Degradation and stablization of some acrylounlice based polymer. M.Sc Polymer Science and Tech. 1985.

458. IBIYEYE, M.K. Some studies on the poly (vinyl acetate) and polycethyl methacryiate)" M.Sc Polymer Sc. & Tech. 1984.

458. IBRAHIM, F.E. "mechanistic study on reactions of 12-tungs tolobaltate (ii) Anion in aqueous solution". M.Sc. Inorganic chemistry, 1991.

559. ISHOLA, M.M. "Some chemical studies on Tamarindus indica" M.Sc Analytical chemistry, 1988.

560. JOB, A. "Factors in the determination of calcium, copper, iron, sodium solution and phosphorus in some ecological materials". M.Sc. Analytical chemistry, 1983.

561. JOHN F.S.S "Assessment of the Nigerian poultry feeds in relation to their nutritive value" M.Sc. Analytical chemistry, 1988.

562. KACBU, J.A. "Comparative studies of some locally produced and imported Alums used for water treatment" M.Sc. Analytical chemistry, 1988.

563. LAWAL, A.M. "The kinetic and mechanism of some Redox reactions of Diaquatervarius (2,2 - Bibyridine) U-O-X) C Diruthenrium (iii) ion in acqueous media" M.Sc Inorganic chemistry, 1991.

564. LAWAL, F.A. "Studies on Arsenic and other toxic pollutants in vegetable tonnery waste - water" Ph.D chemistry, 1988.

565. LORI,.J.A.A. "Determination of some essential minerals in the source soil and in two cultivars of white yam (Dioscorea rotundata)" M.Sc Analytical chemistry 1987.

566. NDUDI, A.A. "Polyhenolic constituents of anogeissue schimperii (make) as of anogeissue schimper II (mark) as a potential Nigerian vegetable tarning material" Ph.D. chemistry, 1986.

567. OGBUEHI, N. "Determination of trace metals in some petroleum products M.Sc. Analytical chemistry, 1989.

568 OHUNEN, O.F. "Chemical analysis of a pesticide otapiapia" M.Sc Analytical chemistry, 1989.

569. OHUNYON, P.E. "Production of adhessives from mangrove bark" M.Sc Polmer Sc. & Tech. 1985.

570. OJOBOR, P.F. "Analysis of some lubricating oils for trace metals by atomic absorption spectrometry using ashing procedures" M.Sc Analytical chemistry, 1983.

571. OKECHUKWU, R.C. "Kinetics and mechanism of the reactions of octacyanomolobdate (V) and 12- Tungstocobactate (iii) Anions with organic liquids in aqueous solutions". M.Sc Chemistry, 1985.

572. OMOJOLA, M.O. "Interferance associated with the determination of calcium in plant materials by atomic absorption spectrometry" M.Sc Analytical Chemistry, 1980.

573. OSUNKIYESI, B.O. " Analysis of trace metals in the blood of some hypertensive patients. M.Sc Analytical Chemistry, 1985.

574. OVIRE, J.A. "Norei Ketone reactions Ph.D. Chemistry, 1985.

575. ONYIOLA, A.J. "Phytochemical analysis of ficus itleophylla" M.Sc Analytical chemistry, 1988.

576. PAIKO, Y.B. "A study of the effects of pre-treatment of Nigerian sugarcane molasses on some inorganic ions required for fermentation processes" M.Sc Analytical chemistry, 1957.

577. PIUS, E. O. "Development of woods products adhessive from mangrove (phizophora, mucrouafa) bane tannisis" Ph.D. chemistry, 1991.

578. SANI, S.M. "Chemical analysis and assessment of the nutritional value of the seeds of tetracarpidium conophorum" M.Sc Analytical chemistry, 1989.

579. TUROTI, O. "Studies on the effects of exposure on the properties of unstablized and stablized polyvinyl chloride PVC" M.Sc Polymer Sc & Tech., 1987.

580. UDOH, A.O. "Quality of drinking water in Zaria" M.Sc. Analytical chemistry 1983.

581. UDOH, A.P. "Standadization of some procedures forthe determination of some metals in petroleum oils" Ph.D Analytical chemistry, 1989.

582. UMOUDOH, A.J. "Some studies on the emulsion copohymorisation of vinyl acetate and ethyl methacrylate" M.sc. Polymer Technology, 1989.

583. YUSUF, A.K. "Further studies on the blends of poly (Vinyl acetate) and Poly-ethyl methacrylates" M.Sc Polymer and technology, 1985.

584. ACHOHWORA, P.O. "Some hydrological aspects of the Lafia coal deport area, Plateau State, Nigeria" M.Sc. Hydrology, 1986.

585. ADAMU, I. "Geology and Geochemistry of the area around Kankara Ka'olinitic clay deposits Katsina State, Nigeria" M.Sc. Geology and Geochemistry, 1990.

586. ADETUNJI, J.R. "Biostratigraphy and sedimentology of cretaceous and tertiary rocks near Gillbedi Sokoto State" M.Sc. Seimentology, 1980.

587. AGBATA, P.C. "Gypsum in the Dukamaje and Dange formations South east of the Rimi river Sokoto basin Nigeria" M.Sc. Geology, 1989.

588. AKINDEJI, O. "Geology heavy minerals and Geochemical surveys for Sn-Ta mineralization in Jama'a street" M.Sc. mineral exploration, 1990.

589. AKINYEDE, J.O. "A Geochemical stream sediment survey in Kufur - Malumfashi area, Kaduna State, Nigeria" M.Sc. Geology, 1981.

590. ARIYO, S.K. "The economic significance of the paeontology of the obi/lafia coalfield, Plateau State, Nigeria" M.Sc. Geology, 1987.

591. ASKIRA, M.T. "Geopressure acquifers an:Geothormal gradient in the Chad formation in Borno State" M.Sc. Geology, 1987.

592. BANKOLE, A. "Hydrogeoloy of the Shika drainage basin, Zaria Kaduna State, Nigeria" M.Sc. Applied Geology, 1983.

593. BUNGWON, A.D. "The geology and preliminary soil geochemical investigation of possible Gold bearing features in the Isarela Tungam Kudaku area near Anka (Sokoto State) M.Sc. Geology, 1983.

594. DANLADI, G.G. "Appraisal of hydrogeological investigations in shallow basement areas of Zaria, Kaduna State" M.Sc. Hydrology, 1985.

595. DANLADI, R. "Geological and compositional studies of the Burum (F.C.T.) and Kwakuti (Niger State) Marble" M.Sc. Geology, 1990.

596. EDUVIE, M.O. "Ground water investigation, assessment and borehole design and completion in the basement complex area, Kaduna State" M.Sc. Hydrogeology, 1991.

597. EL-NAFATU, J.M. "Geology of the Gold mine area, Anka L.G.A. Sokoto State, Nigeria" M.Sc. Geology, 1988.

598. FUNTUA, I.I. "Genesis of uranium mineralization at Kanawa, Gubrunde Horst N.E. Nigeria" M.Sc. Geology, 1988.

599. GARBA, I. "Geological and geochemical investigations of gold occurences north of Isaniu (Street-225 Ne and NW Kwara State" M.Sc. mineral exploration Geology, 1985.

600. JUDE, O.M. "Inventory and assessment of water supply schemes in Owerri town, Imo State". M.Sc. Hydrogeology, 1987.

601. MOHAMMED, I. "Hydraulic properties of the basement complex and Chad formation aquifer of Kano State based on test pumping of selected Boreholes" M.Sc. Hydrogeology, 1984.

602. NAJIME, T. "The Geology, Geochemistry and genesis of uranium mineralization at Dinya - Koking W.E Nigeria" M.Sc. Geology, 1992.

603. OBAJE, N.G. "Foraminiferal, biostratigraphy and paleocology of the Kalmbalna formation, Sokoto embayment N.W. Nigeria" M.Sc. Geology, 1987.

604. OGUNJOBI, M.B. "Hydrogeology of part of Galma basin" M.Sc. Geology, 1983.

605. OGUNLEYE, P.O. "Geology and Geohemistry of Zonal uranium mineralization and laboratory benefication study of uranium ore from Kanawa N.E. Nigeria" M.Sc. Geology, 1991.

606. OJIEGBE, R.U. "Hydrogeological investigations of the Koton Karfi area, Gurara basin Kwara State." M.Sc. Hydrogeology, 1985.

607. OKAFOR, D.U. "Hydrogeology of river Bakogi catchment area, Niger State Nigeria." M.Sc. Hydrogeology, 1991.

608. OLATUNJI, S.A. "Geothermal gradient and temperatute of groundwater in the Sokoto basin, Sokoto State Nigeria. M.Sc. Hydrogeology, 1989.

609. OLUGBEMIRO, O.R. "Stratigraphy and sedimentology of the area around Bida, Niger State" M.Sc. Geology, 1989.

610. OMADA, J.I. "The Geology and Geochemistry of Baryte mineralization in the azara area, middle Benue trough" M.Sc. exploration, 1985.

611. OMADA, J.I. The Geology, Geochemistry and molpbdenite mineralization of the Kigom complex". Ph.D mineral exploration Geology, 1992.

612. RAJI, B.A. "Evaluation of groundwater for irigation in the Asa (Kwara State) and Shika (kaduna state) Drainage Basin" M.Sc. Hydrogeology, 1986.

613. SAKOMA, E.M. "A comparative study of the Geology and mineralization in Diko Niger State and Kalalo, Bauchi State" M.Sc. mineral exploration, 1986.

614. SHEKWOLO, P.D. "Hydrology of Gboko river basin Niger State" Hydrogeology, 1983.

615. SHEKWOLO, P.D. Regional hydrology of Bida basin Niger State central Nigeria" Ph.D. Hydrogeology, 1990.

616. SHIBAYAN, Y. "Investigations of possible chromite securing serpentinites and associated rocks in N.W Nigeria" M.Sc mineral exploration, 1985.

617. SUNDAY, M.A. " Hydrogeology of river Karami (Rahama) Catchment area" M.Sc. hydrogeology, 1986.

618. UDOH, A.N. "Remote sensing interpretation of the geology of parts of Kaduna, Niger" Kwara and Sokoto States, Nigeria, M.Sc. Geology, 1987.

619. UMARU, A.F.M. " Appraisal of some aspects of groundwater resources of Bauchi area, Bauchi State, Nigeria" M.Sc. Hydrogeology, 1987.

620. YAROSON, J.I. "Hydrogeology of part of river TUBO drainage basin Kaduna State Nigeria", M.Sc. Hydrogeology, 1984.

MATHEMATICS

621. ADEWALE, M.O. "Limit sets, prolongations and related topics in the theory of general dynamical semi-systems" Ph.D. mathematics, 1984.

622. AJIBOLA, I.K. "Computational methods in Biofluid mechanics" Ph.D. mathematics, 1989.

623. ALHAJI, E.E. "Baturcation and stability of periodic wave solution: A case for reaction - diffusion system" M.Sc. mathematics, 1987.

624. ANUMBA, R.O. "A design of some computer package for lectures and exmamination scheduling" M.Sc. computer science, 1985.

625. AWOYEMI, D.O.O. "Solution of second order ordinary differential equations using prodictor - corrector methods" M.Sc. mathematics, 1987.

626. BABAGBALE, M.A. "Computerised personel information system for Ahmadu Bello University". M.Sc. computer Science, 1987.

627. BABANGIDA, S. "Towards a generalised solution of a novalions pick problem from Hoo to Hoo." M.Sc. mathematics, 1988. Mxn

628. BAPPAH, M.A. "Peristatitic flow of particles fluid suspension". M.Sc. mathematics, 1986.

629. BELLO, R. "Approximate methods for determination of optimum stratification boundry points for beta, Gama and pareto distribution" Ph.D. statistics, 1986.

630. BHATTI, S.A. Application of computer simulation techniqes in handling the flow of passengers at the Nigerian airport." Ph.D. computer science, 1984.

631. CHOJI, D.N. "A statitiwcal analysis of data on experience with mango trees" M.Sc. statistics, 1985.

632. Doguwa, S.I. "Statistical analysis of non-arthogonal Bi-factoral experiments." M.sc. statistics, 1983.

633. EDEBEATU, O. "Finite difference routines for solving second-order linear ecliptic partial differential equations M.Sc. computer science, 1987.

634. EDEMEKA, W.E. "Effect of body acceleration on blood flow in small and large arteries." M.Sc. mathematics, 1956.

635. ELEKWA, I.G. "One-way multivariable analysis of variance (Anova)" M.Sc. statitistics, 1987.

636. GARBA, E.J.D. "Some functional equations and inequalities" M.Sc. mathematics, 1981.

637. GARBA, G.U. "Hormorphisms of certain types of semilattice of semigroups" M.Sc. mathematics, 1984.

638. IBE, C.I. "The numerical solution of Eigenvalue problems for matrices including generalised eigenvalue problems." M.Sc. mathematics, 1992.

639. INYANG, V.W. "II - separabillity of certain factorizable groups." M.Sc. mathematics, 1979.

640. JIBRIL, H.M. "The numerical solution of (partial parabolic) differential equations in an impulsively started flat plate." M.Sc. mathematics, 1992.

641. KURIYANTHAN, A.D. "Linear regression models. A mathematical programming approach." M.Sc. statistics, 1985.

642. LADELE, B.M.A. "Students information retrieval system (computer) M.Sc. computer science, 1985.

643. LARTEY, G.O. "Matrix elements of the linearized Boltzman collision operator." Ph.D. Mathematics, 1987.

644. MADU, B.A. "Applications of several complex variables to commulative Banach Algebra." M.Sc. matheimatics, 1987.

645. MUHIUDDIN, M. "Mathematical modelling of blood flow in capillaries and arterioles." Ph.D. mathematics, 1986.

646. MUSA, S.A. "Mathematical modelling of Homofiltration." M.Sc. mathematics, 1988.

647. OGOLINE, J.O. "Coutiguous network flow problems." M.Sc. statistics, 1985.

648. OGUNYEMI, T.O. "Laws of large numbers in real and abstract of spaces." M.Sc. mathematics, 1979.

649. OKORO, E.O. "Management information system for decision making computerization of medical records of ABUTH.(Computer)" M.Sc. computer science, 1983.

650. OYERINDE, S.O. "A review of linear and non-linear regression." M.Sc. statistics, 1987.

651. SALEH, A. "Mathematical modelling of fluid exchange through blood capillaries." M.Sc. mathematics, 1986.

652. SHIKA, A.A. "Theoritical studies of microcirculation in non uniform blood vessels." M.Sc. mathematics, 1987.

653. SHOLA, P.B. "Coherent statet for general potential." M.Sc. statistics, 1982.

654. TIZHE, F.Z.B. "Stability conditions for second order linear differential equations by lyapunor's direct method." M.Sc. matheamtics, 1987.

655. UKPONG, M.E. "Mathematical planning models: A case of the Nigerian palm produce board." M.Sc statistics, 1982.

656. UWANTA, I.J. "Peristialtic pumping of fluid, effects of poiseville flow." M.Sc. Mathematics, 1986.

657. YADUMA, A.A. "Computer based student information system (BSIS) for A.B.U. Zaria".M.Sc. computer science, 1990.

658. YAKASAI, B.M. " Ratio estimates with more than one auxilary variables." M.Sc. statistics, 1985.

659. YUSUF, S.A. "Initial value problem for the sequence of generalised Korteweg - Devries equation." M.Sc. mathematics, 1987.

MICROBIOLOGY

660. AGBO, E.B. " Studies on the prevalance of salmonellae in fresh water fishes in some parts of northern Nigeria." M.Sc. microbiology, 1987.

661. AHMAD, A. "The role of cellular and Humoral immunity in the pathogenetics of experimental pichincle virus infection in mice." Ph.D. microbiollgy, 1983.

662. AKINYEMI, O.M. "Studies on developing a starter culture for the formation of Burukutu beer." M.Sc. microbiology, 1990.

663. AKPULU, I.N. "Screening of some Nigeria medicinal plants for anti-bacterial activities." M.Sc. microbiology, 1991.

664. AMEH, J.B."Isolation from local sources and cultivation of potentially useful industrial yeasts on local substrates" M.Sc. microbiology, 1983.

665. AMEH, J.B. "Isolation, selection and improvement of local yeast-stains for ethanol production." Ph.D. microbiology, 1985.

666. BUKBUK, O.N. "The epidemiology of measles in Bauchi State Nigeria." M.Sc. microbiology, 1987.

667. DAUDA, O.O. "The utilization of chorella vulgaries grown on animal waste as a source of protein in feed for oreachromis niloticscus." Ph.D. microbiology, 1988.

668. GALADIMA, M. "Parasitological survey and immunolgical reactions of species of filarial worms in Bonu village (Suleja Emirate) of Niger State Nigeria." M.Sc. microbiology, 1982.

669. IBRAHIM, K. "Incidence of pathogenic clostridial species in selected areas of Kaduna and Niger States" M.Sc. microbiology, 1987.

670. IBRAHIM, K. Bacterialogical and drug sensitivity studies on microbacteria isolated from tuberculousis patients and their close contact in A.B.U teaching hospital, Zaria." Ph.D. microbiology, 1991.

671. IDAHOSA, E.O. "Carriage rate of Neisseria meningitidis and some observations on the persistence of immunity in school children in parts of northern Nigeria." M.Sc. microbiolgy, 1983.

672. INABO, H.I. "Comparative studies on the microbiological quality, post farmentation changes and packaging of selected condiments." M.Sc. microbiology, 1991.

673. JATAU, E.D. "Characterization of yeast isolates from pregnant women in Zaria." M.Sc. microbiology, 1988.

674. KWANASHIE, C.N. Probable etiology of gastroentritis in infants (0-2 years) in Zaria area." M.Sc. microbiology, 1982.

675. LOHYA, G.T."Role of rotavirus in acute gastroeulatis in children in Jos." M.Sc. microbiology, 1987.

676. MIRI, S.G.R. "Seroepidemicology of Herpes simplex virus type 1 (HSV-1) in Plateau State of Nigeria." M.Sc. microbiology, 1985.

677. MIRZA, F. "Incidence of mycoplasma pheumoniae in children with pneumonia at Ahmadu Bello University Teaching Hospital, Zaria". M.Sc. microbiology, 1989.

678. MOBOLAJI, O.B. "Microbiological studies on "Nono" a Nigeria fermented product". Ph.D. microbiology, 1991.

679. MOLOKWU, J.U. "Isolation and characterization of Avian mycoplasmas in Zaria." M.Sc. microbiology, 1983.

680. OGBADU, L.J. "Studies on glutamic acid production by Bacilus isolates involved in 'Daddawa' fermentation." Ph.D. microbiology, 1988.

681. OGBONDEMINU, F.S. "Bacterialogical pollution of river Kaduna." M.Sc. microbiology, 1987.

682. OLATUNDE, O.P. "Immunological studies in patients with hookworm infection in Zaria" M.Sc. microbiology, 1989.

683. OLONITOLA, O.S. "Fungal Actoa uergens in Zaria atmosphere" M.Sc. microbiology, 1990.

684. RAJI, I.A. "Characterization of local strains of Bicillus and production of amylase by Bicillus substilis G3 and Biscillus licheniformis." M.Sc. microbiology, 1987.

685. RAJI, I.A"Studies on improved Alpha-Amylase production using U.V. irradiated strain" Ph.D. microbiology, 1991.

686. SHIDALI, N.N. "Development of formalin in activated oil emulsion N.D vaccine" Ph.D. microbiology, 1988.

687. UMOH, V.J. "Toxin formation by stapylozoccus Aureus in milk and milk products in Zaria area and its public health significance" Ph.D. microbiology, 1988.

688. YUSUF, Z.I. Characterization and enterotism production of Baatus Cerens isolated from some flour based foods." M.Sc. microbiology, 1990.

PHYSICS

689. ABU, M. "Direct current resistivity prospating for ground water in some villages in Kogi and Yagba L.G. areas of Kwara State" M.Sc. Geophysics, 1991.

690. ADENIYI, O.O. "Gravity survey of the older granite plutons in Zaria area of Kaduna State, Nigeria." M.Sc. Applied Geophysics, 1987.

691. ADESUNLOYE, J.S. "Non-local energy density functional theory of cohesive energy in metals." M.Sc. physics, 1987.

692. ADEYEMO, D.J. "The basis for, and management of radioactive waste in Ahmadu Bello University, Zaria." M.Sc. Radiation physics, 1987.

693. AGGARWAL, N. "Application of Geophysical methods to delineate Kaolin deposits and survey for groundwater potentialities at minjibir Kano State." M.Sc. Applied geophysics, 1983.

694. AHMED, A.C. "Mineralogical composition and particle size distribution of harmattan dust haze" M.Sc. physics, 1986.

695. AIYOHUYIN, E.O. "A study of the rotation vibration interaction in even - even deformed nuclei." M.Sc. Nuclear physics, 1987.

696. AJUJI, A. "Thermal properties of the landau - clute in the integral quantum hall effect". M.Sc. physics, 1988.

697. AKPA, T.O. "Effects sot irradiated Asparagine on yeast cells."M.Sc. Radiation Bio physics, 1986

698. ALADE, O.N. "Direct current resistivity and self potential investigation at shonga (Kwara State) Nigeria" M.Sc. Applied physics, 1987.

699. AMALI, A.I. "Energy density functional theory in Doped semicouductors." M.Sc. physics, 1986.

700. AMECHI, N.I. "X-ray induction of chromosomes aberations in peripheral lymphocytos of mammals." M.Sc. Radiation Biophysics, 1991.

701. ANANABA, S.E. "Evaluation of remote senssing application to geophysical studies in Nigeria." Ph.D. Geophysics, 1983.

702. ANEKE, S.C. "A composite geophysical investigationof Gurum Dolomitic marble deposit Federal capital Teritory, Nigeria" M.Sc. Applied Geophysics, 1988.

703. ASHIEKAA, A.J. "A structural analysis of the Benue trough, Nigeria from Geophysics Data." M.Sc. Geo-physics, 1982.

704. BABA-KUTIGI, A.N. "An analysis of E7-M1 multipole mixing ratios of (7' ----> 5') Gamma transition in even-even nuclei." M.Sc. Nuclear physics, 1987.

705. BANWO, A.A. "Comparison of natural background radiation in soil from Zaria and Jos, Nigeria" M.Sc. Radiation Biophysics, 1989.

706. CRAH, A.S. "A gravity investigation of the maiwonaga serpentinue in Sokoto State, Nigeria" M.Sc. Applied Geophysics, 1990.

707. DANIYAN, M.A. "Theoretical magnetotelluric response for simple three dimensional models." Ph.D. Geophysics, 1983.

708. DANJAJI, M.B. "Nuclear radii calculations using the Hartree fock formalism and droplet model" M.Sc. Nuclear physics, 1986.

709. DEWU, B.B.M "A Geophysicsl ground follow-up- to an aero - radiometric anomally at BISICHI, Plateau State Nigeria." M.Sc. Applied Geophysics, 1986.

710. ELEGBA, S.B. "Quantum limit magnetoconductivity in the dilute impurity regime." Ph.D. physics, 1980.

711. ELISHA, M.S. "Electical depth soundings at selected well sites within the Kulani river Basin, Zaria Nigeria." M.Sc.

Applied Geophysics, 1990.

712. EL-YAKUB, M.S. "Determination of the shielding ability of some local materials against 0.662 and 1.332 Mev Gamma photons and 14..3 Mev neutons". M.Sc. physics, 1988.

713. GANDU, A.S. "A detailed gravity investigation in the Malumfashi area of Kaduna State, Nigeria." M.Sc. Applied physics, 1984.

714. GARBA, A.B. "Meterological and stack height analysis for the safe atmosphere dipresion of radioactive wastes." M.Sc. Nuclear physics, 1986.

715. GREMA, A.G. "A flow cytometric measurement of radiation induced division relays in V79 schinese hamster cells" M.Sc Radiation Biophysics, 1989.

716. IBE, K.K. "Gravity and geological investigations over the Zaraunda Younger granites ring complex of northern Nigeria." M.Sc. Applied Geophysics, 1982.

PHYSICS CONTINUED

717. IBEANU, I.G. "Gamma Gama coincidence technique at its possible applications in nuclear spectroscopy". M.Sc. Nuclear physics, 1985.

718. IBIMIDUN, C.O. "Determination of radiation close from x - rays produced from materials exposed to si-90" M.Sc. Radiation biophysics, 1987.

719. IBRAHIM, A.A. "Geological investigations for groundwater in four villages in Roni local Covernment area of Kano State" M.Sc. Applied Geophysics, 1990.

720. IBRAHIM, B. "Ground magnetic investigation of the Kubani river Basin, Zaria" M.Sc. Applied Geophysics, 1992.

721. IBRAHIM, S.M. Construction and calibration of a condensation nucleus counter for the measurement of Aitkin particles is the hermattan Zone" M.Sc. nuclear physics, 1989.

722. IKPOKONTE, A.E. "Gravity and magentic studies of the sub-Basalt cassitoite deposit in Plateu State, Nigeria" M.Sc. Applied Geophysics, 1984.

723. JAMES, O.A. "The applicationof Beaum-forming techniques to enhance low quality selsmic refraction data" M.Sc. Applied Geophyicics, 1990.

724. JODA, F.O. "The establishment of a local gravity network for Zaria area. M.Sc. Applied Geo-physics, 1990.

725. JOE - YAHAYA, U. "Electoic field gradient calculations in dilute alloys copper" M.Sc. physics, 1990.

726. KADIRI, L.A. " Mutagenic and recombinogenic action of Gamma irradiated glucose solutions in yeast". M.Sc. Radiation Biophysics. 1986.

727.KANGKOLO, R. "Interpretation of the aeromagnetic enomalies of Jos Pankshin area in Plateau State, Nigeria" M.Sc. Applied Geophysics, 1984.

728. KUTCHIN, D.Y. Application of monte carlo method to neutron shielding in ordinary concrete" M.Sc. nuclearphysics, 1986.

729. LAWRENCE, A.D. "Nuclear Measurement techniques applied to mineral genesis in lower and middle Benue trough, Nigeria" Ph.D. Physics, 1991.

730. MALLAM, S.P. "Radiosotopic determination of serum folic acid folate and serum vitamin B_{12} concentration of blood donors in Zaria" M.Sc. Nuclearphysics, 1983.

731. MARINS, N.U. "Structural interpretationof gravity and aeromagnetic anomalies over Sokoto basin, Northwestern Nigeria". Ph.D. Geophysics, 1990.

732. MOKOBIA, C.E. "Estimation of annual genetically significant dose from diagnostic radiography in Kaduna State" M.Sc. Physics, 1987.

733. NGADDA, Y.H. "A simulation forenergy dissipation in physical system" M.Sc. Physics, 1988.

734. NTAJI, F.A. "Resistivity and seismic refraction method for groundwater exploration in Malumfashi, Kaduna State, Nigera" M.Sc. Physics, 1979.

735. NWOGBO, P.O. "Spectral analysis and interpretation of aeromagnetic anomalies over the upper Benue trough, Nigeria" M.Sc. Applied Geophysics, 1987.

736. OJO, S.B. "An investigation of P-wave scattering in the upper mantle using travel time fluctuations and array signal coherence" Ph.D. Geophysics, 1981.

737. OKOJIE, H.E "Development of slip cast electrical porcelain bodies" M.Sc. Physics, 1987.

738. OLAPENWAJU, O.M. "A gravity survey of the igneous intrusions in the Rano area of Kano State, Nigeria" M.Sc. Applied Geophysics, 1987.

739. OLUSEGUN, A.S. "Correlation of landsat, gravity and aeromagnetic anomalies with mineral deposit in Nigeria" M.Sc. Applied Geophysics, 1988.

740. OLUSOLA, O.I. "Numerical analysis of laser diode electro-optical characteristics in the vicinity of lasing threshold". M.Sc. Physics, 1989.

741. ONU, N.N. "On the applicability of Geoelectric methods to groundwater prospecting near Dutse, Kano State". M.Sc. Applied Geophysics, 1982.

742. ONUGBA, A. "Detailed resistivity and seismic refraction survey of Nasarawa/Kafur Kumberille pipe area, near Malumfashi Kaduna State". M.Sc. Geophysics, 1979.

743. ONWHEGBUCHE, A.A. " Approximation of three dimensional inhomogenetics by two - dimensional inhomogenetics in magnetotelluric interpretation" M.Sc. Applied Geophysics, 1984.

744. OSAZUWA, I.B. "The establishment of a primary gravity network for Nigeria" Ph.D Geophysics, 1985.

745. OTHINIEL, K.L. "Trend surface analysis and interpretation of gravity data from the middle Niger Basin Nigeria". M.Sc Applied Geophysics, 1991.

746. SAMUEL, E.I. "U - V Inactivation of Bacillus sustilus spores on polyethylene " M.Sc Biophysics, 1990.

747. SANI, A. "Statitical and spectral analysis of aeromagnetic data from two schist belts in northwestern Nigeria". M.Sc Applied Geophysics, 1989.

748. TELLA, M.O. "Geographical exploration for a "porphyritic copper" deposit at the Banke complex, Kano State Nigeria". M.Sc Applied Geophysics, 1979.

749. TUNYI, G.N. "Geostatistiscal analysis and interpretation of aeromagnetic anomalies of the South Eastern part of the Jos Plateau, Nigeria" M.Sc Applied Physics, 1984.

750. UDENSI, E.E. "A three - dimensional interpretation of the Bougher anomalies over Minna Batholith in Niger State". M.Sc Geophysics, 1984.

751. UGURU, C.I. "Application of the non-local density functional theory to the compton profile in x-ray scathering". M.Sc. Physics, 1987.

752. UMAR, S. "Tight binding calculations for the energy bands of crystals with diamond like structure? M.Sc. Physics, 1990.

753. UMO, A.J. "Geophysical activity in Nigeria (1975-1984)" M.Sc Applied Geophysics, 1988.

754. USMAN, K. "Trace elemant analysis of common salt using neutron activation analysis". M.Sc. Physics, 1990.

755. UWAH, E.J. "Investigation of radiometric anomalies by nulcear and other methods. A case study of Sokoto basin of Nigeria". Ph.D physics, 1984.

756. VERHEVEN, P.J.T. "Proton scathering from polarised Helium - 3 in energy range from 20-35 Mev" Ph.D Geophysics, 1983.

757. YUSUF, L. "Werner deconvolution and interpretation of the upper Benue trough, Nigeria". M.Sc Applied Geophysics, 1990.

758. YUSUF, N. "Application of geophysical prospecting methods of groundwater exploration around Atumawa village in Kano State". M.Sc Applied Geophysics, 1981.

TEXTILE SCIENCE AND TECHNOLOGY

759 ABDULLAHI, O. "Effects of spinning speed and count variations on the irregularity of De-Rotor spurn yards" M.Sc Textile science and Tech, 1990.

760. DARMA, N.U. "Effects of fibre content yarn mechanical properties and finishing treatment on Fasric handle". M.Sc Textile science and Tech., 1991.

VETERINARY ANATOMY AND PHYSIOLOGY

761. ADOGWA, O.A. "Morphorlogical and cytoarchitectural studies on the brain stem of the one humped camel (camelus dromedarios)" Ph.D Vet. Anatomy., 1985.

762. AYO, J.O. "Effects of mycardial ischaema reperfusin injury on total and differential leucocyte counts and leucocyte induced Haemolysis in dogs" M.Sc Vet Anatomy, 1989.

763. GBOLAGADE, D.G. "Microanatomical studies of the skin of the one-humped camel (Camelus dromedarios) with particular reference to the hair follicle and sweat glands measurements". M.Sc. Vet. Anatomy. 1983.

764. GHAJI, A.K. "Brain of the one-humped camel (Camelus dramedarious) morphologic cyctoarchitectural and myeloarchitectural studies" Ph.D Vet. Anatomy. 1983.

765. HAMBOLU, O.J. "Ovarian Biometrics, seasonal changes in yankasa sheep and Sokoto red goats in Zaria" M.Sc Vet. Anatomy., 1982.

770. ISITOR, N.G. "Intrastructural study of normal and neoplastic cells of cammine hepatoid circumantal glands" Ph.D. Vet. Anatomy., 1981.

771. LOMBIN, H.L." The application of the complement fixation test in haemophilus pleuroponawmiae infection in Swine" M.Sc vet. Anatomy., 1981.

VETERINARY PARASITOLOGY AND ENTOMOLOGY

772. AGBEDE, R.I.S "A case study of the gut cells of boophilus microplus in relation to babesia Bovis development and host immunity". Ph.d Vet Parasit and Entom., 1984.

773. AUDU, P.A. "Studies on experimental infection on cross immunity of COWDRIA RUMINANTIUM in Sokoto red goats". M.Sc Vet Parasit. and Entom., 1991.

774. DADA, B.J.O. "Ecological and immunological studies on three Taemid cestodes of public health importance in Nigeria". Ph.D Vet. parasti. and Entom., 1987.

775. JAGUN, A.G.B. "Serological survey of Bovine analplasmosis farm and treatment of the clinical disease". M.Sc Vet Parasit. and Entom., 1982.

776. MAIKAJE, B.D. "The susceptibility of UDA breed of sheep to experimental trypanosome vivax infection". M.Sc Vet. Parasit. and Entom., 1985.

777. NTEKIM, A.E. "Experimental Ascarinda galli infection: Effects on Egg - type pullets". M.Sc Vet. parasit. and Entom., 1983.

778. OGEDENGBE, J.D. "Prevalence of rabbit coccidial infection and pathogenecity of isolated EIMERIA STIEDAL for local rabbits in Zaria". M.Sc. Vet. parasit. and Entom., 1991.

779. SANTAYA, L.K. "Screening of some Nigerian plants for moluscilidal activity" M.Sc. Vet. parasit. and Entom., 1987.

780. TENEBE, S.O. "Effect of gamma irradiation on the survival and reproductive biology of laboratory reared males of glossina palpalis R-D Dipteria glossimidae" Ph.D Vet. Parasit. and Entom., 1984.

781. UZOIGWE, R.N. "Immunity engendered through self cure in Zebu calves experimentally infected with Trypanosom vivax". M.Sc. Vet parasit. and Entom., 1984.

VETERINARY PATHOLOGY AND MICROBIOLOGY

782. AGBEUNDE, A. "Studies on the epidemiology of foot and mouth disease in Nigeria". Ph.D Vet Path. and Micro., 1987.

783. ALATIATAYO, A.R. "Haematology of experimental contagious pleuropneumonia". M.Sc Vet.Path. and Micro., 1985.

784. AMEH, J.A. "Clinical and bacteriological studies of caprine and ovine mastitis in Kaduna, Kano and Katsina States of Nigeria". M.sc Vet path and micro., 1991.

785. BALE, O.O. "Cultural and serological study of ovine and caprine Brucellosis in northern Nigeria". M.Sc. Vet. path. and micro., 1980.

786. DAWUDA, P.M. "Timing of insemination and use of milk and serum progesterone profile and somatic cell counts for evaluation of reproductive efficiency of Nigeria Zebu Cattle". M.Sc. Path. and Micro., 1988.

787. EBEZIAKA, E.U."Studies on Campylobacter fetus subspecies Jejun isolated from cattle in Zaria area Nigeria". M.Sc. Vet. path. and micro., 1985.

788. EDUVIE, O.L. "Effects of human chorionic gonadotropin stumulation on corpus luteum fariction oand fertility in cattle". M.Sc. Vet. Path. and micro., 1979.

789. EYONG, O.E. "Immunopathological studies in experimental eschbrichiacoli (serotype 0119:B14) caprine abortion. M.Sc Vet path. and micro., 1982.

790. EZEH, A.O. "Epidemiological and bacterialogical studies on animal and human leptospirosis in Plateau State Nigeria. Ph.D. Vet. Path. and micro., 1988.

791. FATIHU, Y M. "Prevalence and pathology of gastrointestinal parasites of poultry in Zaria Nigeria". M.Sc. Vet. path. and micro., 1990.

792. HUSAINI, U.D. Erythrocyte osmotic fragility test in domestic animals. Ph.D Vet. path. and micro., 1987.

793. IBRAHIM, G.N. Histological and histochemical changes in camine mycardial Ischemia M.Sc. Vet. path. and micro., 1988.

794. KAMBAI, E.B. "Bovine campylobacteriosis in the indigenous cattle of some states in northern Nigeria. M.Sc. Vet. path. and micro., 1987.

795. KAZEEM, M.H. "The effect of cylophosphamide and 2- mercaptoe thamol on antibody response and bursal structure in vaccinated chicken". M.Sc. Vet. path. and micro., 1986.

796. SALAKO, O.M. Bacillus Arithracis in raw (flayed) goat skin and leather with reference processing methods". M.Sc. Vet. path. and micro, 1986.

797. SALISU, G. "A survey of serum plasma glutamic pyruric transamiase in dogs brought to the veterinary clinic of A.B.U.Zaria Ph.D. Vet. path. and micro., 1982.

VETERINARY PHYSIOLOGY AND PHARMACOLOGY

798. FASANYA, O.O.A. "Puberty and post patrum reproductive activity in the Savannah bown goat". Ph.D. Vet. Phys. and Pharm., 1991.

799. IBRAHIM, A.M. "Evaluation of the activities of African tradition on thelmantic herbs against NIPPOSTRONGYLUS Braziliesis in rats" M.Sc. Vet. Phys. and pharm., 1984.

800. ISHAKU, D.I. "Studies on the sub therapeutic use of dietary antibiotics and the nutritional value of aerobically fermented poultry manure for broiler chicks". Ph.D Vet. phys. and pharm., 1985.

801. IZUCHUKWU, B.O. "The morphologic, morphometric and histologic studies of the female reproductive system of the helmented guinea fowl". M.Sc. Vet. phys and pharm., 1985.

802. MAMMAN, M. "Eletrocadiogram and electroencephalograms of some Nigerian domestic animals, normal patterns and effects of some drugs and disease conditions". M.Sc. Vet. phys. and pharm., 1989.

803. MOSES, O.I. "Physiologic response of savana brown goats and yanksa sheep to harmatan and hot dry seasons". M.Sc. Vet. phys. and pharm., 1982.

804. OGUNKOYA, A.B. "Epidemiology of rabbies in Kaduna, Oyo and Lagos States of Nigeria". M.Sc. Vet. Phys. and pharm., 1986.

805. OSINOWO, O.A. "Testicular growth and semen qualities of West African bulls". Ph.D. Vet. phys. and pharm., 1979.

VETERINARY PUBLIC HEALTH AND PREVENTIVE MEDICINE

806. AGANGA, O.A. "Epidemiological studies of toxoplasmosis in three northern states of Nigeria". Ph.D. Vet. Public health, 1987.

807. AHMED, M.S. "Comparative evaluation of cyprotective compound for deep-freezing of ram spermatozoa in diluent". Ph.D. Vet public health, 1989.

808. EZEIFEKA, O.C. "Epidemiology of blue tongue, rift vally fever and Orungo fever viruses in food and animals of Sokoto and Kaduna states of Nigeria". M.Sc. Vet. Public Health, 1983.

809. ITODO, E.A. "Isolation and serologic identification of clostridium pertrigens (melchii) in cattle sheep and paddock soil". M.Sc. Vet. public health, 1984.

810. LOMBIN, L.H. "Studies on urea plasma spp of Human and catle origin with reference to prevalence, characterization and pathogenicity in Nigeria". Ph.D. Vet. public health, 1988.

811. MISUGAONDO, H.D. "Epidemological study of trichinosis in Kaduna State of Nigeria". M.Sc. Vet. public health, 1989.

812. NWOSUH, N.E. "Isolation and characterization of Yersinia species from chickens around Zaria". M.Sc. Vet. public heaith, 1987.

813. ONUARAH, I.S. "Prevalence and characteristics of coliforms and staphylococci in a local cereal drink(kunun Zaki) in Samaru". M.Sc. Vet. public health, 1984.

814. SHEHU, L.M. "Survey of tubaculosis and tubercle bacillium fulani herds "NoNo" and some herdsmen in Zaria area Nigeria". M.Sc. Vet. public health, 1988.

815. USMAN, S.A. "The assessment of economic losses caused by streptothricosis in Nigeria". M.Sc. Vet. public health. 1982.

VETERINARY SURGERY AND MEDICINE

816. ABDULLAHI, K.R. "Effects of varying levels of crude protein on some blood parameters and immune response in sheep". M.Sc. Vet. Surg. and med., 1983.

817. ADAMA, R.L. "Epidemiology of diarrhea in small ruminants (sheeps and goats in Zaria)" Ph.D. Vet. Surg. and med., 1983.

818. ANTHONY K.B.C. "Studies on ovine anaplasmosis in Zaria". M.Sc. Vet. Surg. and medicine., 1987.

819. BELLO, A. A. "The effect of cesarian section on some aspect of post partum reproductive function in Yankasa ewes". M.Sc. Vet. Surg. and med., 1990.

820. BISHU, G. "Isolation and identification of two pathogenic eemeria species in chicken in Nigeria". M.Sc. Vet. Surg. and med., 1982.

821. DIAKA-DUM, I. "Infertility and genital pathology of bulls indigerious to Nigeria". Ph.D. Vet. Surg. and med., 1981.

822. EDUVIE, L.O. "Uterine involution, ovarian activity and bacterological studies of the postpartum period in indigenous Nigerian cattle". Ph.D. Vet. surg. and med., 1982.

823. GUSAU, A.G. "The prevalence and economic importance of fascioliasis in Zaria abbatoir and the animal production laboratory, A.B.U. Zaria". Ph.D. Vet.Surg. and med., 1979.

824. KOOMSON, M.T.O. "Study on the female reproductive tract of indigenous sheep and goats". M.Sc. Vet. surg. and med., 1980.

825. NIANG, S.P. "Escherichia coli abortion studies in sheep". Ph.D. Vet. Surg. and med., 1982.

826. OCHOLI, R.A. "Prevalence of brucela antibodies in fulani cattle herds in Kaduna State". M.Sc. Vet. surg. and med., 1990.

827. OGWU, D. "Effects of trypanosome vivax infection on female reproduction in cattle" Ph.D. surg. and med., 1983.

828. REKWOT, I.P. "Effect of varrying levels of protein intake on growth, puberty and semen quality of bunaji and friesian bunaji cross breed bulls". M.Sc. Vet. surg. and med., 1987.

829. RIBADU, Y.A. "Morphometric, histological and pathological studies of the genitalia of one humped female camel Camelus dromederius in northern Nigeria". M.Sc. Vet. Surg. and med., 1988.

830. SAIDU, A.N.S. "Bovine theileriosis in Nigeria". M.Sc. Vet. surg. and med., 1981.

831. SAIDU, A.N.S. Role of ticks and accaricides in the epidemiology of dermatophilosis in Nigeria". Ph.D Vet. Surg. and med., 1986.

832. TRIMINIEL,R.A. "Prevalence of diarrhoea and some of the causes in dogs in Zaria area". M.Sc. Vet Surg. and med., 1988.

833. VOH, A.A. "Sychronization and detection of Estrus bunaji and Sokoto gudali cows with prostaglandin F_2 alpha". M.Sc. Vet. Surg. and med., 1984.