

**PATTERN OF UTILISATION
AND
CAREER PROFILES
OF
RECENT Ph.Ds IN SCIENCE AND TECHNOLOGY**

**Project Sponsored by
(Department of Science & Technology)
Government of India**

**INSTITUTE OF APPLIED MANPOWER RESEARCH
INDRAPRASTHA ESTATE, RING ROAD
NEW DELHI 110002
June, 1991**

ACKNOWLEDGEMENT CARD

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PREFACE

The linkage of educational qualifications together with human and material investments that go into acquiring these qualifications with the economic benefits to the individuals and the society at large is a subject of serious concern. It goes to the credit of the Department of Science and Technology that they have been providing leadership and financial support for research into utilization pattern of the scientific and technical manpower. The present study namely 'Utilisation Pattern and Career Profiles of Recent Ph.Ds in S&T Disciplines' undertaken by the Institute of Applied Manpower Research at the instance and with the financial support of the Department of Science and Technology bears an ample testimony to the initiative and interest of that Department in the proper planning and development of S&T manpower to meet the development needs of this country.

The study Report is in two volumes. Volume I contains the text of the Report and Volume II is a directory of individual Ph.D. scholars by area of specialisation.

It is earnestly hoped that the recommendations and information/data generated by this study would be useful to the policy planners, educational institutions, potential Ph.D. scholars and the researchers in the area of S&T manpower. The directory of individual Ph.D scholars may be useful to the Department of Science and Technology, University Grants Commission, Council of Scientific and Industrial Research, etc. for referral purposes. This directory could also be an important input for initiating further research and for developing a comprehensive directory covering all Ph.D scholars in S&T disciplines in the country.

The Institute is grateful to the members of the Advisory Committee for having provided valuable guidance and support to the study at various stages. Professor Gautam Mathur, Former Director, IAMR, Dr. (Mrs.) A.R. Rajeshwari, Jt. Adviser, Department of Science & Technology, Dr. D.N. Mishra, Director General and Adviser to the Govt. of Madhya Pradesh (S&T), (formerly Adviser, CSIR), Shri J.P. Vinayak, Coordinator, University Grants Commission, Commdr. R. Chandra, Professor and Head of Training and Placement, IIT, Delhi deserve special mention. We are also thankful to various universities and the institutions as also the individual scholars for furnishing the requisite data and extending the desired cooperation. Our thanks are also due to Late Sh. R. R. Gulati, Director, Department of Science and Technology who had been coordinating with this Institute on behalf of the Department of Science and Technology.

M.K. Khanijo

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June, 1991

Summary of Important Findings and Recommendations.

A. SUMMARY OF IMPORTANT FINDINGS

1. The total number of Ph.D degrees awarded in Science and Technology during the reference period 1.7.1980 to 30.6.1985, was 18671 averaging 3734 per year.
2. Analysis of responses of 3200 scholars indicates that :
 - * 87.6% were male scholars and 12.4% females,
 - * 33.2% of the scholars were in the age group upto 30 years.,
 - * 45.9% were between 30-39 years, 19.0% between 40-49 years and 1.9% were in the age group 50 years and above,
 - * 95.6% scholars were employed, 4.1% were unemployed and 0.3% were not seeking employment, and
 - * 97.5% of the male scholars were employed. Of the female scholars, 82.1% were employed.
3. Percentage of female scholars (89.9) doing Ph.D at an early age is higher as compared to male scholars (77.6%).
4. Employment percentage of male Ph.Ds in each age group excepting the age group '50 years and above' is higher than that of female Ph.Ds.
5. There is nearly full employment in Technological (excepting Chemical Technology) Agricultural, Medical and Veterinary Sciences. There is full employment in Nuclear Physics, Statistics and Geo-Physics.
6. The lowest percentage employment is in Biochemistry (88.3).
7. Analysis of activities of scholars indicates that :
 - * 38% of the scholars were engaged exclusively in teaching,
 - * 29.4% of the scholars were engaged exclusively in research,
 - * 24.3% of the scholars were engaged both in teaching and research, and
 - * 8.3% of the scholars were engaged in work other than teaching/research e.g. management, administration, quality control, etc.
8. Miscellaneous subjects group (Anthropology, Home Science, Library Science, Meteorology and Oceanography, Demography and Population Studies) has the highest percentage (35.3) and the Technological sciences the lowest percentage (20.7) of scholars engaged exclusively in research work.

9. Physical and Mathematical Sciences group has the highest percentage (45.9) exclusively engaged on teaching while Agriculture, Medical and Veterinary Sciences have the lowest percentage (16.4).
10. Technological Sciences group has the highest percentage (43.0) of scholars engaged both on research and teaching. Physical and Mathematical Sciences have the lowest percentage (15.9).
11. Geo-physics has the highest percentage (57.9) of scholars engaged exclusively on research while Medical Sciences has the lowest (Nil).
12. Medical Sciences has the highest percentage (77.3) engaged exclusively on teaching while Chemical Technology the lowest (12.5).
13. Veterinary Science has the highest percentage (63.0) of scholars engaged both on research and teaching while Biochemistry has the lowest (5.3).
14. Medical Sciences has the highest percentage (22.7) of scholars engaged on work other than research and teaching while Geography has the lowest (3.1%).
15. Analysis of the distribution of scholars by sex indicates that
 - * 36.5% of male scholars are engaged exclusively on teaching as against 51.1% of female scholars,
 - * 29% of male scholars are engaged exclusively on research as against 32.3% of female scholars, and
 - * 26% of male scholars are engaged exclusively on both research and teaching as against 10.5% of female scholars.
16. * Technological Sciences group, Agricultural, Medical and Veterinary Sciences group, and Geo-sciences group are more popular with male scholars as compared to female, the comparative percentages being 10.8, 18.6 and 4.1 for males, and 1.5, 6.5, and 1.5 for females respectively.
 - * Physical Sciences are equally popular both amongst male (39.8%) as well as female scholars (38.8%).
 - * Bio-sciences and Miscellaneous group of sciences are more popular amongst female scholars as compared to males, the comparative percentages being 48.0 and 3.7 for females, and 26.9 and 0.8 for males, respectively.

17. 251 scholars (8.3%) are holding posts in pay scales lower than the entry scale (Rs. 2200-Rs. 4000) for direct recruits in group 'A' organised Services. Their activity wise distribution is - Teaching (73), Research (134) and other (44). Many of these scholars (107) are in the age group 30-39 years and above and have put in 2.5 to 7.5 years of service after award of Ph.D.
18. The percentage of scholars placed - (I) grade (i.e. below Rs. 2200 - Rs. 4000) is far lower in teaching than in research and other professions.
19. Employment opportunities - both quantitative & pay scalewise - are better in teaching institutions as compared to research & other organisations.
20. The employment pattern of Ph.D scholars by type of organisations is as follows:
 - * 70.8% were employed in Universities & other autonomous organisations;
 - * 22.5% were employed in Government departments;
 - * 4.1% were employed in Private Sector Undertakings
 - * 2.4% were employed in Public Sector Undertakings
 - * 0.2% were Self employed.
21. It is observed that except in the case of Medical Sciences, the highest percentage of scholars among all subject groups are employed in the Universities/autonomous organisations.
22. Analysis of length of service put in by scholars indicates that 679 (22.8%) scholars have put in 0-5 years of service, 693 (23.3%) scholars 6-10 years, and 1603 (53.9%) scholars over 10 years of service.
23. Amongst scholars who have put in over 10 years of service 4.1% are in (-) I grade, 37% are in Grade I and 58.9% Grades II and above.
24. Amongst scholars who have put in 0-5 years of service, 16.1% are in (-) I Grade. The corresponding percentage in case of scholars having put in 6-10 years of service is 11.2%.
25. In teaching profession the percentage of scholars in (-) I Grade is the lowest (4.3%) and is highest in Grade I (55.1%).
26. In Teaching Profession :
 - * Chemistry has the highest number of scholars in (-) I Grade.
 - * No Scholars below the age of 30 years had acquired Ph.D in the Technological Sciences, Nuclear Physics, Medical & Veterinary Sciences, Geography, Geophysics and Anthropology.

- * Proportion of scholars holding pay Grade III is the highest in Medical Sciences (47.1%) followed by Electrical Engineering (44.8%), Mechanical Engineering (36.0%).
 - * None of the scholars hold pay Grade III in Nuclear Physics, Statistics, Geography, Geophysics and Anthropology.
 - * Veterinary, Technological and Medical Sciences have the highest percentage of scholars in Grade II and above while Bio-sciences and Physical and Mathematical sciences have the lowest.
27. In Research Profession :
- * 132 scholars (13.2%) are in (-) I Grade
 - * The highest percentage of scholars in (-) I Grade is in Anthropology and the lowest (Nil) in Nuclear Physics, Statistics, Civil Engineering, Electrical Engineering, Electronics & Computer Science and Medical Sciences.
 - * No scholar below the age of 30 years acquired Ph.D in Technological Sciences Group, Nuclear Physics, Mathematics, Statistics, Medical Sciences, Veterinary Sciences, Zoology and Anthropology.
 - * Technological Sciences Group have the highest percentage (72.0) of scholars holding-Grade II or higher positions while Bio-Sciences have the lowest (33.0).
28. In professions 'other than teaching/research'
- * 19.2% of scholars are in (-) I Grades.
 - * Mining, Chemical and Aeronautical Engineering have the highest percentage in (-) I Grade.
29. From career point of view, in all the three professions female scholars are worse off than male scholars.
30. 73.1% of scholars (both male and female) did their Ph.D for their genuine desire for enhancement of knowledge in the relevant subjects, 65.4% for improving their career prospects, 14.9% for getting a particular job in view, 7.5% for having been sponsored by the organisation/employer, 5.5% for meeting the mandatory requirement of the organisation and 7.1% for other miscellaneous reasons.
31. From the point of view of realisation of objectives for which scholars did Ph.D. 63.2% of

scholars are reported to have attained their objectives wholly, 25.1% partially and 11.2% could not achieve their objectives even partially.

32. In Computer Science the percentage of scholars who could attain their purpose fully was maximum (75.8), followed by Chemical Engineering (74.2), Statistics (73.3), Geo-physics (72.2) Nuclear Physics (71.5), Zoology (71.0), Biology(others)(70.9) and Agricultural Sciences (70.3).
33. Realisation of objectives amongst females (58.2%) was lower than that of males (63.9%).
34. Ph.D degree was essential qualification in case of 29.3% of the scholars while it was desirable qualification in case of 41.4% of the scholars. It was neither essential nor desirable in case of 29.3% of the scholars.
35. Medical Sciences, Geology, Botany and Geo-Physics top the subject list where Ph.D is not needed for the position held by the scholars.
36. 57.6% of the scholars were predominantly engaged in the work related to their field of specialisation while 28.6% were engaged in the work which was partly related to their field of specialisation. 13.8% of scholars were engaged in work which was not at all related to their field of specialisation.
37. The highest percentage (71.8%) of scholars engaged in work related to their field of specialisation was in Agriculture, Medical and Veterinary Sciences. The percentages in the other Groups were - Technological Sciences (68.8%), Geo-Sciences (64.9), Bio-Sciences (53.9), and Physical Sciences (50.3).
38. The percentage of female scholars predominantly engaged in work related to their field of specialisation was lower (46.9%) than that of males (58.9%).
39. 48.5% of scholars considered their pay scales to be commensurate with their qualifications and experience. This percentage was the highest (72.2%) in Veterinary Sciences followed by Agriculture Sciences (69.8%), Electronics and Computer Sciences (65.6%) and Medical Sciences (63.6%).
40. Pay scale wise Agriculture, Medical and Veterinary Sciences have the highest percentage of male scholars (63.4) who are satisfied with their grades. The other subject groups in descending order are : Geo-Sciences (51.9%), Technological Sciences (45.9%), Physical Sciences (45.4%), Bio Sciences (44.5%), and the Miscellaneous subjects (Anthropology, Home Science, Library Science etc.) group (34.8%).
41. Technological Sciences have the highest percentage of female scholars who are satisfied

with their grade (80.0%). The other subject groups in descending order are : Miscellaneous subjects Group (66.7%), Agriculture, Medical and Veterinary Sciences (52.4%), Bio Science (45.2%), Physical Sciences (44.4%) and Geo-Science (40.0%).

42. 65.3% of scholars continued their interest in research work even after award of Ph.D. The highest percentage of scholars (74.4%) was in the age group below 30 years. This percentage amongst male scholars was (66.2) and that amongst females (59.0).
43. Biology (others) i.e. Physiology, Genetics, Aquatics, Biology & Life Sciences had the highest percentage of scholars (76.7%) who evinced interest in research even after award of Ph.D. Other subjects in which interest continued was higher than 70% were Nuclear Physics, Statistics, Medical Sciences, Geophysics, Zoology, Bio-Chemistry and Physics.
44. Miscellaneous Group had the lowest percentage of scholars (45.5%) who evinced interest in research after the award of Ph.D. The next lowest was Mathematics followed by Civil Engineering, Veterinary Sciences, Electronics and Computer Science.
45. On an average, each scholar had written 11 papers. This average for males was 12 and that for females 8.
46. On an average each scholar had written 5 papers before and 6 after doing the Ph.D.
47. Average number of papers written per scholar in Medical Sciences was the highest (35 papers) and in Computer Science and Anthropology lowest (7 papers) in each subject.
48. 44% of scholars were not engaged on any project.
49. Out of remaining 56% scholars engaged on projects, each is working on 2 projects.
50. The project data furnished by scholars was analysed in detail for selected subjects. It reveals that :
 - * Maximum percentage of projects (33.8%) are funded by Public Sector organisations.
 - * Minimum percentage of projects (8.3%) are funded by Private Sector.
 - * Govt. Depts/Ministries including DST has funded 17.4% of the projects.
51. Average duration of project is highest in case of UGC (3.1 years i.e. 37 months) and lowest in case of Public sector organisations (2.0 years i.e. 24 months)
52. Detailed analysis of some subjects, too reveals that each scholar is working on 2 projects.

53. The number of projects decline with increase in the duration of the projects.
54. Only scholars (1.9%) had their patents commercialised. 5 were males and 2 females. The subjects in which more than 5% of the scholars had their patents commercialised were Electronics, Computer Sciences, Geo-physics and Biology (others).
55. In Civil Engineering none of the scholars got his patent commercialised.
56. Of the 3200 scholars who responded, 36 were residing abroad. Of these 32 were in employment or in receipt of fellowship/financial assistance for post doctoral research. The work status of the remaining 4 is not known.
57. Of the 36 scholars abroad 10 were Ph.D in Chemistry, 8 in Biochemistry, 4 in Zoology, 3 each in Physics and Botany, 2 in Chemical Technology and 1 each in Biology (others), Veteniary Science, Civil Engineering, Electrical Engineering, Electronics and Bio Chemical Engineering.
58. Of the 32 scholars employed or getting financial assistance abroad, 18 reported Ph.D as an essential qualification while 3 as a desirable qualification. The remaining 11 reported Ph.D neither essential nor desirable for the positions held by them.
59. Of the 32 scholars employed or getting financial assistance abroad, 2 scholars reported to be doing work unrelated to their fields of specialisation. Both the scholars were Ph.Ds in Chemistry.
60. Most of the scholars residing abroad did their Ph.D to fulfil their desire for genuine knowledge or for improving their career prospects, and 3 scholars out of 34 could attain their objectives.
61. Positions held by 24 scholars abroad were commensurate with their qualifications and experience while the positions of 8 scholars were lower than expected as per their qualifications and experience, 5 of these scholars were Ph.Ds in Chemistry and 3 in Biochemistry.
62. 27 scholars abroad continued to take interest in research work even after award of Ph.D.
63. 3 scholars abroad have had their patents commercialised. 2 of them were Ph.Ds in Biochemistry and 1 in Bio-chemical Engineering. All these three scholars were in age group 30-39 years.

B. RECOMMENDATIONS :

1. The number of Ph.Ds produced in Chemistry, Chemical Technology, Botany, Zoology, Biochemistry and Anthropology appears to be more than what the economy can gainfully absorb. The pace of new induction in these subjects, therefore, needs to be reviewed.
2. Additional intake of Ph.Ds may be considered for subjects having 100% employment (i.e. Engineering, Nuclear Physics, Statistics & Geography).
3. In order that the research organisations can match the teaching institutions in attracting the talent, it seems desirable to improve promotional prospects in research organisations.
4. Considering that a large percentage of scholars (42.4%) are engaged on work wholly or partly unrelated to their field of specialisation, it is suggested that job specifications for various posts may be reviewed so as to match them with job requirements.
5. Female scholars may be given special consideration and better facilities in pursuing Ph.D courses as also in the matter of employment since the number of female Ph.Ds and their percentage of employment is lower than that of male Ph.Ds.

CHAPTER-I

INTRODUCTION

Background

Science and Technology play a very important role in the development of a country and well-being of its people. Realising this, our country assigned science and technology its due place and priority after independence. India formulated a comprehensive science policy and set up a Department of Science and Technology. A national plan of Science & Technology was framed and many institutions for teaching and research in Science and Technology have been added over the years. Side by side, specialisations have diversified and developed both horizontally and vertically. Liberal grants and financial assistance has been extended to Institutions and individual scholars for research, development and expansion of activities in science.

1.2 As a result, not only did science become more popular, but the number of personnel engaged in research leading to award of degree of Ph. D also multiplied. India today produces more than 4,000 Ph.Ds a year in Science and Technology. This number was a mere 180 in 1951. The growth in the number of Ph.Ds in Science and Technology from the year 1950-51 to 1984-85 is shown in Annexure I.

Genesis of the study

1.3 The fact that there has been a phenomenal growth in the number of Ph.Ds could not by itself lead to the conclusion that human and material investments made towards that end were justified in the larger interest of the country or from the point of view of the individual Ph.D Scholars. Planners, Educational Institutions, Researchers, Public Analysts and Administrators had no means of knowing about the utilisation of Ph.Ds. As such it was difficult to say whether existing policies, research programmes and priorities relating to the development of S&T personnel in different streams at the Ph.D level called for any change.

1.4 A study by Prof. Rais Ahmed on Quality, Character and Efficiency of Scientific Research in Indian Universities and IITs, sponsored by CSIR, has looked into some of the aspects like knowledge of research scholars, facilities for research number of scholars under supervisors, nature of research work, selection of problem of research area etc. However, that study does not attempt to look into the pattern of utilisation of Ph.Ds in Science & Technology. The present IAMR study attempt to generate information on utilisation pattern of Ph.Ds in S & T and allied aspects.

1.5 It goes to the credit of the Department of Science and Technology that it took initiative in the matter and approached the Institute of Applied Manpower Research to undertake a study.

Objectives of the study

1.6 The main objectives of the study were :

- a) To analyse career profiles and utilisation pattern of recent Ph.Ds in Science and Technology so as to generate data/inputs for initiating measures to improving/modifying the existing programmes and priorities to ensure improved manpower development, planning and utilisation at the level of Ph.Ds.
- b) To bring out the distribution of Ph.Ds.:
 - i) by specialisation, age groups, sex, regions,
 - ii) by nature of specialisation, versus nature of duties/employment,
 - iii) by job titles versus the nature of duties,
 - iv) by salaries versus specialisations and types of organisations, and
 - v) by lead time for securing employment and its variation from specialisation to specialisation.
- c) To bring out a list of individual Ph.D holders together with their addresses, area of specialisation, present position, etc. so that it could be used by the Department of Science & Technology and other organisations like the University Grants Commission and Council of Scientific and Industrial Research for referral purposes as also for constitution of various Committees/Working Groups as and when necessary. The list could also be used for initiating further research and as an input for a comprehensive directory of all the Ph.Ds to be developed later.

Advisory Committee

1.7 In order to guide and advise the study, an Advisory Committee comprising the following was constituted :

1.	Professor Gautam Mathur, Director, IAMR	Chairman	Since replaced by Prof. Ashoka Chandra, Director IAMR
2.	Dr. (Mrs.) A.R. Rajeshwari Joint Adviser, DST.	Member	
3.	Dr. D.N. Mishra, Adviser, CSIR.	Member	
4.	Shri S.S. Suryanarayanan, Joint Adviser, Planning Commission.	Member	
5.	Shri J.P. Vinayak, Coordinator, University Grants Commission	Member	
6.	Commr. R. Chandra, Professor & Head of Training and Placement, IIT, Delhi.	Member	
7.	Dr. M.K. Khanijo, Adviser, IAMR	Member	
8.	Shri M.S. Ramanujam, Chief (Research), IAMR.	Member	Since Acting as Convener
9.	Shri K.L. Rawal Chief (Consultancy), IAMR.	Convener	Since left for Ministry of Finance

Shri Suryanarayan could not associate himself with the Advisory Committee because of his pre-occupations.

CHAPTER II

APPROACH AND METHODOLOGY

Collection of basic information from University Grants Commission

The IAMR collected the list of universities (including deemed Universities and Institutions of national importance) along with the university-wise figures relating to number of scholars who were awarded Ph.D during the period of 5 years from 1980-81 to 1984-85. The number of universities/deemed universities and institutions of national importance in 1984-85 was as under :

i)	Universities	125
ii)	Deemed universities	15
iii)	Institutions of national importance	10
	Total	150

2.2 The total number of Ph.D degrees awarded in Science and Technology during the reference period of 5 years (i.e. 1980-85) was 18,671, averaging 3,734 per year.

Sampling of universities

2.3 The terms of reference of the study stipulated analysis of the career profiles of about 20 per cent Ph.Ds. In order to ensure that the sample selected represented all the regions of the country and all the science and technology subjects in which Ph.D degrees were awarded, the entire country was divided into 6 regions as under :

I. Eastern Region

1. Bihar
2. Orissa
3. West Bengal

II. Western Region

1. Gujarat
2. Maharashtra

III. Southern Region

1. Andhra Pradesh
2. Karnataka

3. Kerala

4. Tamil Nadu

IV. Central Region

1. Madhya Pradesh

2. Uttar Pradesh

V. Northern Region

1. Haryana

2. Himachal Pradesh

3. Jammu & Kashmir

4. Punjab

5. Rajasthan

6. Delhi

7. Chandigarh

VI. North Eastern Region

1. Assam

2. Manipur

3. Meghalaya

4. Tripura

5. Arunachal Pradesh

6. Nagaland

Method of selection of sample universities

2.4 Universities were listed State-wise in descending order in terms of Ph.D degrees awarded by each universities in 1978-79, the latest year for which the University Grants Commission could give the information regarding the number of Ph.D Scholars. Thereafter, every alternate university was selected from each State leaving out the universities/institutions not engaged on teaching of S&T disciplines. This ensured representation of all the States and the universities of all sizes - both big and small.

Eliciting information from sampled universities

2.5 The sampled universities were requested to furnish in a specified format the names and addresses of all the scholars who were awarded doctorate (Ph.D/D.Sc/D.Litt) in Science and Technology under each subject separately during the period - 1.7.1980 to 30.6.85. The title of the thesis leading to the award of the degree was also required to be indicated against each scholar. A specimen copy of the format is appended (Annexure II).

2.6 The requisite data from the University of Delhi and the Indian Agricultural Research Institute, New Delhi was collected by IAMR through personal visits.

Design and pre-testing of questionnaire for eliciting information from the scholars

2.7 A questionnaire for eliciting information from the scholars was designed and mailed to the scholars of the University of Delhi and the Indian Agricultural Research Institute, New Delhi, requesting them to fill in the same and return them to the IAMR. (A specimen of the pre-tested questionnaire is at Annexure III). Filled in questionnaire of the scholars of the above two institutions were examined from the point of view of clarity of questions and adequacy of information. The questionnaire was modified in the light of the result of this examination. (See Annexure VI).

Approval of study design and methodology by the Advisory Committee

2.8 A meeting of the Advisory Committee took place on 24th December, 1987. The proposed study design and methodology were explained to the Committee in detail along with the progress of action already taken. The Committee also considered in depth the questionnaire which had been designed for eliciting information from individual scholars. The questionnaire was revised in the light of guidance given by the Committee and the revised questionnaire was circulated to all the members of the Committee. (Revised questionnaire is at Annexure VI).

Subjects considered as Science & Technology subjects

2.9 It was noticed that the universities do not follow a uniform system in classifying the subjects as 'Science' or 'Arts'. For instance, while some universities classified Mathematics, Statistics and Geography as Science, the others classified them as 'Arts'. For the purposes of the present study, it was decided in consultation with the Advisory Committee that the IAMR would treat those subjects as science subjects which have been accepted as such by the Indian Science Congress. The final list of subjects treated as Science/Technology Subjects for the purposes of this study is at Annexure IV.

Addition to the sampled universities & follow up visits for collection of data

2.10 Initially, 72 universities/Institutions were addressed to furnish the particulars of scholars who were awarded Ph.Ds by them during the reference period. It was observed that response from some of the universities was not positive. In fact, some of the universities reported that they were not at all keeping a record of the addresses of scholars who have been awarded Ph.Ds. In case of many other universities, there was inordinate delay in the supply of requisite data. Having regard to these aspects, 23 additional universities/Institutions were addressed to furnish the relevant data regarding Ph.D. Scholars.

2.11 Non-responding universities were repeatedly reminded to expedite the supply of requisite data. In cases where reminders did not produce the desired results, the IAMR team made personal visits. The IAMR teams visited 39 universities and institutions for collection of requisite data about the Ph.D Scholars.

2.12 The number of universities which ultimately supplied the requisite data and constituted the final sample was 63. A list of these universities is at Annexure V. Statistics regarding the number of scholars awarded Ph.D in Science and Technology during the reference period is also given in Annexure V.

2.13 Region-wise distribution of universities, deemed universities and institutions of national importance along with the number covered by the sample was as under :

Region	Universities		Deemed Universities		Institutions of National Importance	
	Total	Covered by the sample	Total	Covered by the Sample	Total	Covered by the Sample
i. Eastern	23	9	1	1	2	2
ii. Western	19	10	2	—	1	1
iii. Southern	31	15	4	1	3	1
iv. Central	30	13	3	—	1	—
v. Northern	17	5	5	1	3	2
vi. North-Eastern	5	2	—	—	—	—
Total	125	54	15	3	10	6

Eliciting information from the Ph.D Scholars

2.14 As and when the particulars of Ph.D Scholars from a particular university were received, the prescribed questionnaire (Annexure VI) was mailed to them with a request to return the same duly completed. Pre-paid reply envelopes were mailed along with the questionnaire so that the scholars did not have to incur any expenditure while returning the filled in questionnaire. The number of scholars who were mailed the questionnaire was 10,366. This represented about 55.5 per cent of the scholars who were awarded Ph.D during the reference period.

2.15 The IAMR had planned to start the tabulation and analysis of the responses of Ph.D scholars from July 1988 on the assumption that about 20 per cent of the scholars would have sent the completed questionnaire by 30th June, 1988. However, in view of the unanticipated delay in the receipt of the

requisite data, first from the universities and then from the scholars, the targeted date for receipt of completed questionnaire was extended to 30th November, 1988.

2.16 Till 30th November, 1988, 3,200 completed questionnaire were received from the Ph.D Scholars who completed their Ph.Ds during the reference period. 364 questionnaire were returned to the IAMR by the postal authorities. These questionnaire could not be delivered to the addressees because they had changed their addresses and the new addresses were not available.

2.17 Region-wise break-up of the number of scholars to whom the questionnaire were mailed and the number of scholars who had returned the filled in questionnaire is as under :

Region of the country	No. of questionnaire mailed	No. of filled-in questionnaire received
i. Eastern	1700	601
ii. Western	1746	536
iii. Southern	2082	610
iv. Central	2647	760
v. Northern	2147	675
vi. North-Eastern	44	18
All India	10,366 (100%)	3,200 (31%)

2.18 The responses received was just 31 per cent. To find out the reasons therefore, IAMR sent its representatives at random to some addresses of the non-responding scholars from Delhi. Unfortunately none of the scholars was found to be staying there. It appears that many of the scholars had changed their residences and consequently did not receive the questionnaire at all and hence no response was received from them.

2.19 94 completed questionnaire were further received during the period December, 1988 to April, 1989. Since these were received very late and their inclusion would have further delayed the finalisation of the study they were not taken into account while making the analysis. Subject-wise break-up of the filled in questionnaire received and considered is given in Annexure VII.

2.20 Item No. 12 of the Annexure VII 'Engineering - Others' includes Mining Engineering and Aeronautical Engineering. Item No. 19 "Biology-Others" includes Marine Biology, Environmental Biology, Micro Biology, Physiology, Genetics, Plant Biology, Aquatic Biology and Life Sciences.

Subjects which have been lumped together either under "Engineering - Others" or "Biology-Others" are the ones in which the number of responses was less than 10.

Broad grouping of subjects

2.21 For the purposes of tabulation and analysis and inter-group comparisons, subjects listed in Annexure IV have been categorised into six broad groups as under :

Broad Group	Subjects included
I. Physical & Mathematical Sciences :	<ol style="list-style-type: none">1. Physics,2. Nuclear Physics3. Chemistry4. Mathematics and5. Statistics
II. Technological Sciences:	<ol style="list-style-type: none">1. Civil Engineering2. Mechanical Engineering3. Electrical Engineering4. Electronics & Computer Sc.5. Chemical Engineering6. Chemical Technology and7. Engineering - Others (Mining Engg., Aeronautical Engg., Aerospace & Soil Dynamics).
III. Agricultural & Veterinary Sciences:	<ol style="list-style-type: none">1. Agricultural Sciences and2. Veterinary Sciences
IV. Medical Science :	<ol style="list-style-type: none">1. Medical Sciences
V. Bio-Sciences :	<ol style="list-style-type: none">1. Botany2. Zoology3. Bio-Chemistry and4. 'Biology-others' (Physiology, Genetics, Aquatic Biology & Life Sc.)
VI. Geo-Sciences:	<ol style="list-style-type: none">1. Geography2. Geology and3. Geo-physics

VII. Miscellaneous

1. Anthropology
2. Home Science
3. Library Science
4. Meteorology & Oceanography and
5. Demography & Population Studies

Tabulation Plan

2.22 All the data contained in 3,200 questionnaire was first posted into broad sheets as per specimen format at Annexure VIII. From these broad sheets tables focusing on 14 sets of characteristics - each highlighting a particular characteristic or facet of the scholars were compiled. This is for the purpose of calculating the Age of scholars, the age in completed years till 1988 was taken into account. The tables compiled for each one of the characteristics are listed below :

1. Distribution of Ph.Ds into employed, unemployed and not seeking employment by subjects, sex and age-group;
2. Distribution of employed Ph.Ds by their nature of work, subjects, sex and age-groups;
3. Distribution of Ph.Ds by their nature of work, subjects, sex and grades;
4. Distribution of Ph.Ds engaged in teaching profession by subjects, sex, age-groups and grades;
5. Distribution of Ph.Ds engaged in research work by subjects, sex, age-groups and grades;
6. Distribution of Ph.Ds engaged in work other than teaching/research by subjects, sex, age-groups and grades;
7. Essentiality of Ph.D qualification for the jobs held by Ph.Ds by sex, age-groups and subjects;
8. Number of years taken by employed Ph.Ds to attain their present grades (scales of pay) by subjects and nature of work;
9. Distribution of Ph.Ds by subjects, sex, age-groups and whether or not the work done by them relates to their field of specialisation;
10. Distribution of Ph.Ds by subjects, sex and reasons for doing Ph.D;
11. Distribution of Ph.Ds by subjects, sex, age-groups and whether or not they achieved their purposes of doing Ph.D.;
12. Distribution of Employed Ph.Ds by subjects, sex and age-groups and whether or not present position/grades are commensurate with their qualification and experience;
13. Distribution of Ph.Ds by subjects, sex, age-groups and whether or not they sustained their interest in publishing papers after award of Ph.D;

14. Distribution of Ph.Ds by subjects, sex, age-groups and whether or not they commercialised any patents.

Some vital parameters and dates

2.3 For purposes of reference and record, some vital parameters and dates concerning the study have been listed in Annexure IX.

CHAPTER III

AGE STRUCTURE AND EMPLOYMENT STATUS

Age profiles

The questionnaire which was required to be filled-in by the Ph.D. Scholars elicited, inter alia, information regarding their date of birth, sex and details of employment held by them as of present as well as in the past. Unemployed scholars were also required to indicate whether or not they were seeking employment.

3.2 Of the 3,200 scholars who furnished the data as per questionnaire, 2803 (87.6%) were males and 397 (12.4%) were females. In terms of age, the scholars were distributed into 4 groups, viz. upto 30 years, 30-39 years, 40-49 years, 50 years and above. The distribution of scholars by these age groups was as under :

Distribution of Scholars by age groups and Sex by the age of attaining Ph.D

Age group as on the year of Ph.D award	Males	Females	Total
Upto 30 years	858 (30.6%)	204 (51.4%)	1062 (33.2%)
30-39 years	1317 (47.0%)	153 (38.5%)	1470 (45.9%)
40-49 years	569 (20.3%)	38 (9.6%)	607 (19.0%)
50 years and above	59 (2.1%)	2 (0.5%)	61 (1.9%)
Total	2803 (100.0%)	397 (100.0%)	3200 (100.0%)

3.3 It is observed that more than 79% of the scholars who were awarded Ph.D during 1981-85 were in the age group upto 39 years, out of which 45.9% were in the age group 30-39 years and 33.2% were in the age group upto 30 years. 1.9% of the scholars obtained their Ph.Ds after attaining the age of 50 years. In percentage terms, female scholars do their Ph.D at an early age compared to the male scholars, although the female Ph.D Scholars are significantly smaller in number than the male Ph.Ds. As the age advances beyond 50, fewer and fewer people are in a position to pursue higher studies. However, male scholars in this age-group seem to be placed more favourable than the female scholars.

Employment status by age-groups

3.4 Out of 3200 scholars who were awarded Ph.D during 1980-85 and are reflected in the sample, 3058 (95.6%) were employed. Of the 132 (4.1%) unemployed scholars, the number of males was 63 and that of females was 69. The number of those not seeking wage employment was 10 (0.3%) (males 8 and females 2).

3.5 In percentage terms, unemployment among female Ph.Ds was higher than among male Ph.Ds. Out of 2803 male Ph.Ds, 2732 (97.5 %) were employed whereas in case of females, out of 397 Ph.Ds, 326 (82.1%) were employed. There is no evidence to suggest that the higher percentage of unemployment in case of female scholars is due to their not offering themselves for employment. As a matter of fact, out of the total of 10 scholars not seeking employment, only 2 were female and rest 8 were males.

3.6 The study has also revealed that the employment percentage amongst male Ph.Ds in each age group excepting the age group "50 years and above" is higher than that amongst female Ph.Ds. This is borne out from the figure given below :

	Age Group	Employed male Ph.Ds No. (% to Total)	Employed female Ph.Ds No. (% to Total)
i)	Upto 30 years	100 (90.9%)	25 (73.5%)
ii)	30-39 years	1459 (96.9%)	230 (79.3%)
iii)	40-49 years	956 (99.2%)	60 (96.8%)
iv)	Above 50 years	217 (96.9%)	11 (100.0%)
	Total	2732 (97.5%)	326 (82.1%)

Employment status by subjects :

3.7 Broad subject-group-wise distribution of 3,058 employed scholars is as under :

1)	Physical and Mathematical Sciences	1210
2)	Technological Sciences	304
3)	Agricultural and Veterinary Sciences	506
4)	Medical Sciences	22
5)	Bio-sciences	865
6)	Geo-sciences	116
7)	Miscellaneous	35
	(Anthropology, Home Science Library Science, Meteorology and Oceanography, Demography and Population Studies)	

3.8 The detailed employment position of male and female Ph.D scholars by subjects is given in Anexure - X. It is observed that under the 'Physical Sciences' group, the overall employment percentage is 96. In this subject group the employment percentage is 100% for Nuclear Physics and Statistics whereas it is 98.8% for Physics, 97.6% for Mathematics and 93.9% for Chemistry.

3.9 In Group II covering 'Technological Sciences'; there is 100% employment in 5 subjects namely Civil Engineering, Mechanical Engineering, Electrical Engineering, Electronics & Computer Sciences and Chemical Engineering. The employment percentage for Chemical Technology is 94.1 and Engg. others is 97.7.

3.10 The Group III, covering 'Agricultural and Veterinary Sciences', the respective employment percentages are 98.9 and 96.4.

3.11 The employment percentage of Medical Sciences is 95.7.

3.12 In the Bio-sciences group covering Botany, Zoology and Biochemistry, the respective employment percentages are 90.3, 92.2 and 88.3.

3.13 Under 'Geo-Sciences' covering Geology, Geography and Geo-physics, the employment percentages are 95.6, 97.0 and 100.0 respectively. In the Miscellaneous Group, Anthropology has employment percentage of 90.0 only.

3.14 Taking subject-wise comparative employment percentages as a guide, it appears that the number of Ph.Ds being produced in Chemistry, Chemical Technology, Botany, Zoology, Biochemistry and Anthropology is more than what the economy can gainfully absorb. It, therefore, needs to be considered whether the pace of new inductions in these subjects should not be lowered. Conversely, additional intake of Ph.Ds seems to be justified in subjects which are reporting 100% employment. Nuclear Physics, Statistics, Civil Engineering, Mechanical Engineering, Electrical Engineering, Electronics & Computer Sciences, Chemical Engineering and Geo-Physics fall in this category.

Incentives to female scholars;

3.15 Considering that the female representation in Ph.Ds is just 12.4% and the percentage of unemployed amongst them (18%) is also far higher than amongst male Ph.Ds (2.5%), the female scholars may be given special consideration and better facilities in pursuing Ph.D courses as also in the matter of employment.

CHAPTER IV

ACTIVITY PROFILE OF Ph.Ds

Activity groups

In the previous Chapter we discussed the age-structure and employment position of Ph.D scholars. Presently, we shall discuss their activity profile.

4.2 For the purposes of ascertaining their activity pattern, the Ph.Ds were requested to give in the Questionnaire the details of the duties performed by them. Based on the details thus given, it is found that, the Ph.D Scholars may be categorised into the following activity groups:

- 1) Research only
- 2) Teaching only
- 3) Research and teaching both
- 4) Other than research/teaching (i.e. management, administration, quality control etc.)

4.3 Activity-wise distribution of scholars under each subject group by each subject is at Annexure XI. A table showing activity-wise distribution of scholars by subject groups for male and female scholars separately is at Annexure XII.

4.4 It is observed that 38% scholars are engaged exclusively on teaching work, 29.4% exclusively on research work, 24.3% on teaching and research and the remaining 8.3% on work other than research/teaching e.g. administration, banking, accounts, management etc.

Subject-groups versus activities with the highest and the lowest percentage of scholars

4.5 The highest percentage of scholars exclusively engaged on research work (35.3%) fall under the subject group 'Miscellaneous (1. Anthropology, 2. Home Science, 3. Library Sc., Meteorology & Oceanography and Demography & Population Studies)'. On the other hand nobody is exclusively engaged on research in the subject group 'Medical Sciences'.

4.6 The highest percentage of scholars exclusively employed on teaching (77.3%) fall in the Medical Sciences subjects group. The lowest percentage of scholars exclusively employed in teaching (13.9%) fall in the 'Agricultural and Veterinary Sciences' subject group.

4.7 The highest percentage of scholars engaged on both research and teaching (44.8%) fall in Agricultural & Veterinary group. On the other hand nobody is engaged on research and teaching in the subject group Medical Sciences.

Subjects versus activities with highest and lowest percentage of scholars

4.8 Geo-Physics and Chemical Technology have the highest percentage of scholars-57.9% and 50% respectively - exclusively engaged on research work. The lowest in the ladder are Medical Sciences reporting Nil employment for exclusively research activities.

4.9 Medical Sciences and Mathematics have the highest percentage of scholars - 77.3% and 65.3% respectively - exclusively engaged on teaching. The lowest percentage of scholars engaged exclusively on teaching is in Chemical Technology followed by Agriculture - 12.5% and 12.7% respectively.

4.10 The highest percentage of scholars doing both research and teaching work is in Veterinary Sciences where it is 63 per cent. The next two subjects with high percentages are Statistics (47.6%) and Mechanical Engineering (46.3%). The lowest percentage of scholars doing both research and teaching is in Biochemistry (5.3%) followed by Chemistry (12.2%), Nuclear Physics (12.5%) and Geology (13.9%).

4.11 Medical Sciences have the highest percentage of scholars (22.7%) engaged on work other than research/teaching. The lowest percentage of scholars engaged on work other than research/teaching is in Geogrphy (3.1%) followed by Mathematics (3.5%).

Distribution of scholars by activities and sex

4.12 Of the male scholars, 36.5% are engaged exclusively on teaching as against 51.1% females. The percentage of female scholars engaged exclusively on research is 32.3 as against 29 male scholars. However, the percentage of male scholars engaged on both research and teaching is higher than that of females with 26% and 10.5% respectively.

4.13 It may also be of interest to note that (a) Technological Sciences, (b) Agricultural and Veterinary Sciences and (c) Geo-Sciences are more popular with male than with females scholars. The percentage of male scholars in these 3 groups of sciences is 10.8, 18.1 and 4.1 as against 1.5, 4.3 and 1.5 for females respectively.

4.14 The popularity of Physical Sciences is almost evenly matched between male scholars and female scholars, the respective percentages being 39.8 and 38.8.

4.15 The Bio-Sciences, Medical Sciences, and the miscellaneous group of sciences covering Anthropology and Home Sciences etc., are more popular with female scholars than with male scholars. The respective percentage of female scholars in these groups is 48.0, 2.2 and 3.7 as against 25.9, 0.6 and 0.8 for male scholars.

CHAPTER V

SALARY PROFILE OF Ph.Ds

Data elicited from Ph.D scholars through the questionnaire included information on employment along with ranks and pay scales etc. for the entire length of service put in before and after the award of Ph. D. Information regarding emoluments and scales of pay attached to their posts was given by 3,009 scholars.

5.2 It was found that the employment of Ph.D scholars depending on whether they were employed in teaching institutions or research and other organisations was generally in the following pay grades :

Teaching Institutions

1. Rs. 2200-4000
2. Rs. 3700-5700
3. Rs. 4500-7300

Research and other organisations

1. Rs. 2200-4000
2. Rs. 3000-4500
3. Rs. 3700-5000/Rs. 4100-5300
4. Rs. 4500-5700
5. Rs. 5900-7300

5.3 Of the 3009 scholars who furnished information regarding their salary status, 1768 were found to be in the teaching category and 1241 in research and other organisations (research - 1006, others - 235).

5.4 It may be pertinent to note that the scale of Rs.2200-4000 is the entry scale for direct recruits in Group 'A' organised services and for all other Group 'A' posts. the study has revealed that out of 3009 Ph.Ds there were as many as 254 (8.5%) who were holding posts in pay scales lower than Rs. 2200-4000. The distribution of 254 scholars of this category was as under.

Teaching	76
Research	133
Others	45

5.5 As indicated earlier in para 3.2, the number of Ph.D scholars falling in the age group 'upto 30 years' is 144 only. It is therefore, evident that there are many (110) scholars in the age groups 30 and above also who are drawing pay in the pay scales lower than Rs. 2200-4000 and are thus underplaced in spite of their having 2.5 years to 7.5 years of service after the award of Ph.D. This calls for an indepth examination of the existing employment and educational policies / with a view to ensuring optimal placement and utilisation of such highly qualified personnel.

5.6 With a view to comparing the salary profiles of scholars employed in teaching institutions vis-a-vis those in research and other organisations, scholars employed in non-teaching organizations and drawing pay scales of Rs. 3000-4500, Rs. 3700-5000, Rs.4100-5300 and Rs. 4500-5700 have been treated as a single group because in the teaching insitutions there is an integrated grade of Rs. 3700-5700. Distribution of scholars by pay grades and nature of work they are engaged on is a as below:

Pay Grade	Teaching	Reaserch	Other than Research Teaching	Total
Below (-) I 2200-4000	76 (4.3%)	133 (13.2%)	45 (19.2%)	254 (8.4%)
I 2200-4000	974 (55.1%)	365 (36.3%)	72 (30.6%)	1411 (46.0%)
II 3700-5700	575 (32.5%)	498 (49.5%)	118 (50.2%)	1191 (39.6%)
III 5900-7300	143 (8.1%)	10 (1.0%)		153 (5.1%)
Total	1768 (100%)	1006 (100%)	235 (100%)	3009 (100%)

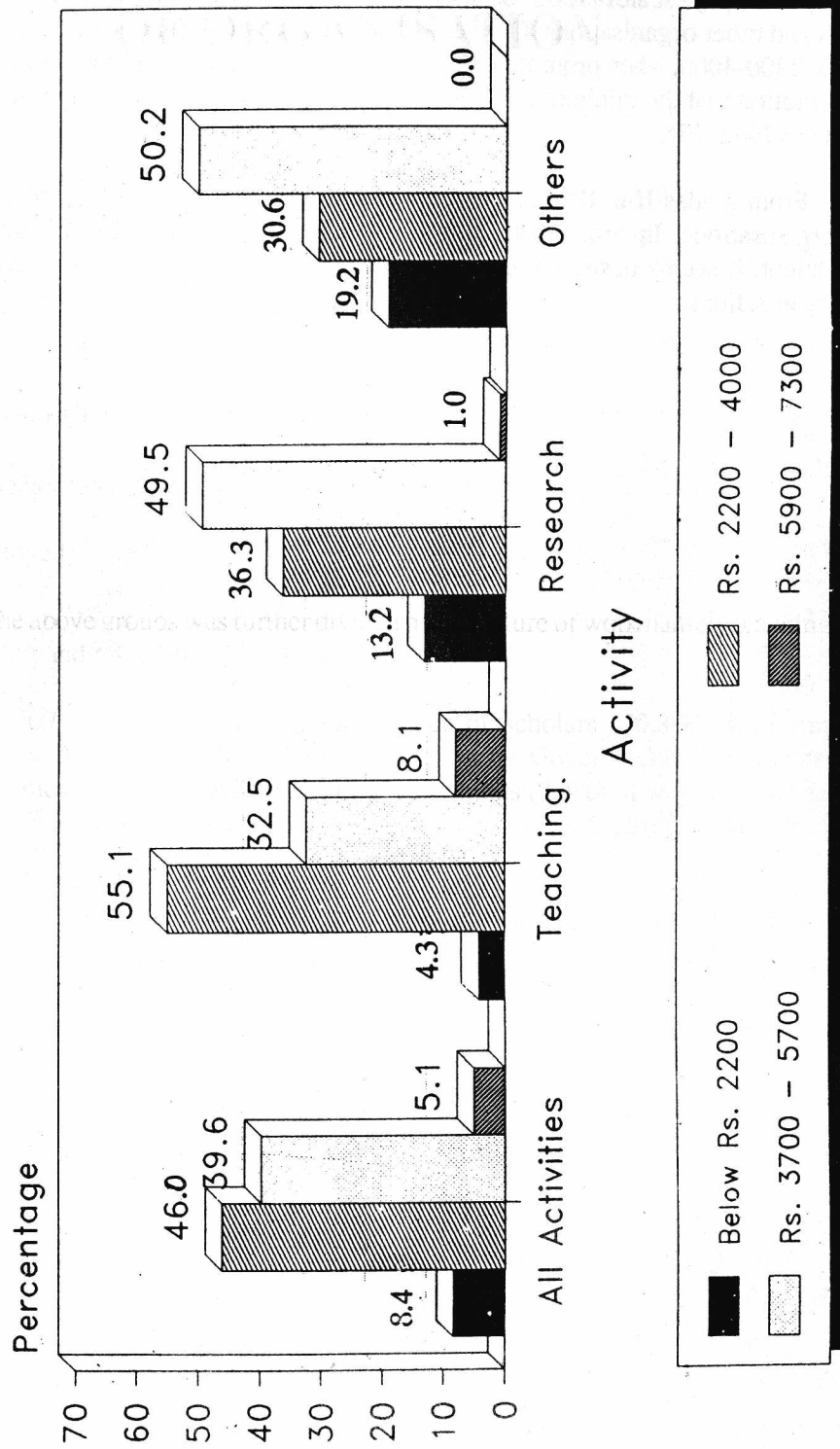
The above distribution has also been depicted in the bar chart appearing on next page.

5.7 It may be clarified that where the scholars were drawing pre-revised pay scales, they have been placed in the appropriate revised pay scales and where scholars were drawing scales different from the ones listed above they have been placed in the pay scales closest to their pay scales. Scholars who are in pay-scales lower than Rs. 2200-4000, have been deemed to be in (-) I Grade.

5.8 It is observed that the percentage of scholars placed in (-) I Grade (i.e. below Rs. 2200-4000) is far lower in teaching than in research and other professions - the respective percentages being 4.3, 13.2 and 19.2. The number and percentage of scholars holding pay Grades I and III are also higher in teaching than in other professions. The percentage of scholars in pay Grade II is, however, lower in teaching than in research and other professions - the respective percentages being 32.5, 49.5 and 50.2. Furthermore, the distribution of posts in Grades I, II and III in teaching institutions is in the percentage ratio of 58:34:8. The corresponding percentage ratios in research organisations are 42:57:1.

5.9 It would appear that at initial stages, employment opportunities - both quantitatively and pay scale-wise are better in teaching institutions as compared to research and other organisations. Middle level positions in teaching institutions are, no doubt, proportion-wise fewer in comparison to research and other organisations. However, considering that there is one integrated pay-scale viz. Rs. 3700-5700 in teaching institutions corresponding to three or four different pay grades viz. Rs. 3000-4500, Rs. 3700-

Grades Held by Scholars By Activity



5000, Rs. 4100-5300 and Rs. 4500-5700 in research and other organisations, scholars in teaching institutions may not be placed as unfavourably as revealed by the comparative percentages. This is so because in teaching profession, scholars holding the pay grade of RS. 2200-4000, when promoted, move straight-way to the pay - scale of Rs. 3700-5700 encompassing three or four promotions in relation to those in research and other organisations. On the other hand, a scholar on non-teaching side holding the pay grade of Rs. 2200-4000, when promoted is placed in the pay-scale of Rs.3000-4500. It is only at the stage of next promotion that the minimum of his pay scale coincides with the minimum of the pay-scale of a scholar on teaching side.

5.10 From grades II to III promotion prospects are much better in teaching institutions than in research organisations. In order that research organisations can match the teaching institutions in attracting talent, it seems desirable to improve promotional prospects from Grade II to Grade III in research organisations.

CHAPTER VI

DISTRIBUTION OF Ph.D SCHOLARS BY TYPE OF ORGANISATION

The Ph.D scholars were asked to furnish details about their employment status and the name of organisation (if employed). Of the 3,058 scholars who reported themselves to be employed only 3,009 furnished information regarding the name of the organisation. For the purpose of analysis, the employing organisations were grouped as under :

- i) Government (Central & State)
- ii) Universities and other Autonomous Institutions
- iii) Public Sector Undertakings
- iv) Private Sector Undertakings
- v) Self employed.

6.2 Each of the above groups was further divided by the nature of work namely teaching, research and other than teaching and research.

6.3 Of the 3,009 scholars, the maximum number of scholars (70.8%) were employed in 'Universities and other Autonomous Institutions', followed by Government departments (22.5%), Private Sector Companies (4.1%) and Public Sector Undertakings (2.4%). It was very disheartening to note that only 7 scholars out of 3009 (i.e. 0.2%) were self employed. Of these 5 were from medical profession. (Kindly see Annexure XVII).

6.4 Same trend of concentration of scholars in Universities and other Autonomous Institutions was seen prevailing in teaching category (85.0%), research category (52.5%) and other than teaching and research category (41.3%) but with varying degrees.

6.5 Within the group of Universities and Autonomous Institutions, maximum concentration of scholars was in teaching (70.6%) followed by research (24.8%) and others (4.6%). In all the groups, except Self employed, maximum concentration was in research category (Govt. 53.4%, Private Sector Companies 58.0% and Public Sector Undertakings 51.6%). In case of Self-employed, all the 7 (100.0%) scholars fall under 'others' category.

6.6 Distribution of scholars by subject groups and type of organisations is also given in Annexure XVII. It is observed that except in the case of Medical Sciences, the highest percentage of scholars among all the subject groups are employed in the Universities and Autonomous Institutions.

CHAPTER VII

LENGTH OF SERVICE VIS-A-VIS PAY GRADES

The questionnaire canvassed amongst the Ph.D Scholars elicited information regarding all the posts held by the scholars before and after obtaining Ph.D along with dates of joining and leaving. From the information thus furnished, an attempt has been made to study the linkage between length of service and pay grades. For the purpose of analysis, the length of service has been considered under three blocks, i.e. 0-5 years, 6-10 years and above 10 years.

7.2 2,973 Ph.D Scholars furnished data regarding the period of service put in by them in different pay grades. Of these 679 scholars (22.8%) had put in 0-5 years of service, 693 (23.3%) 6-10 years of service and the remaining 1,601 (53.9%) over 10 years of service.

7.3 The following table shows the distribution of scholars by length of service and the pay grades held by them.

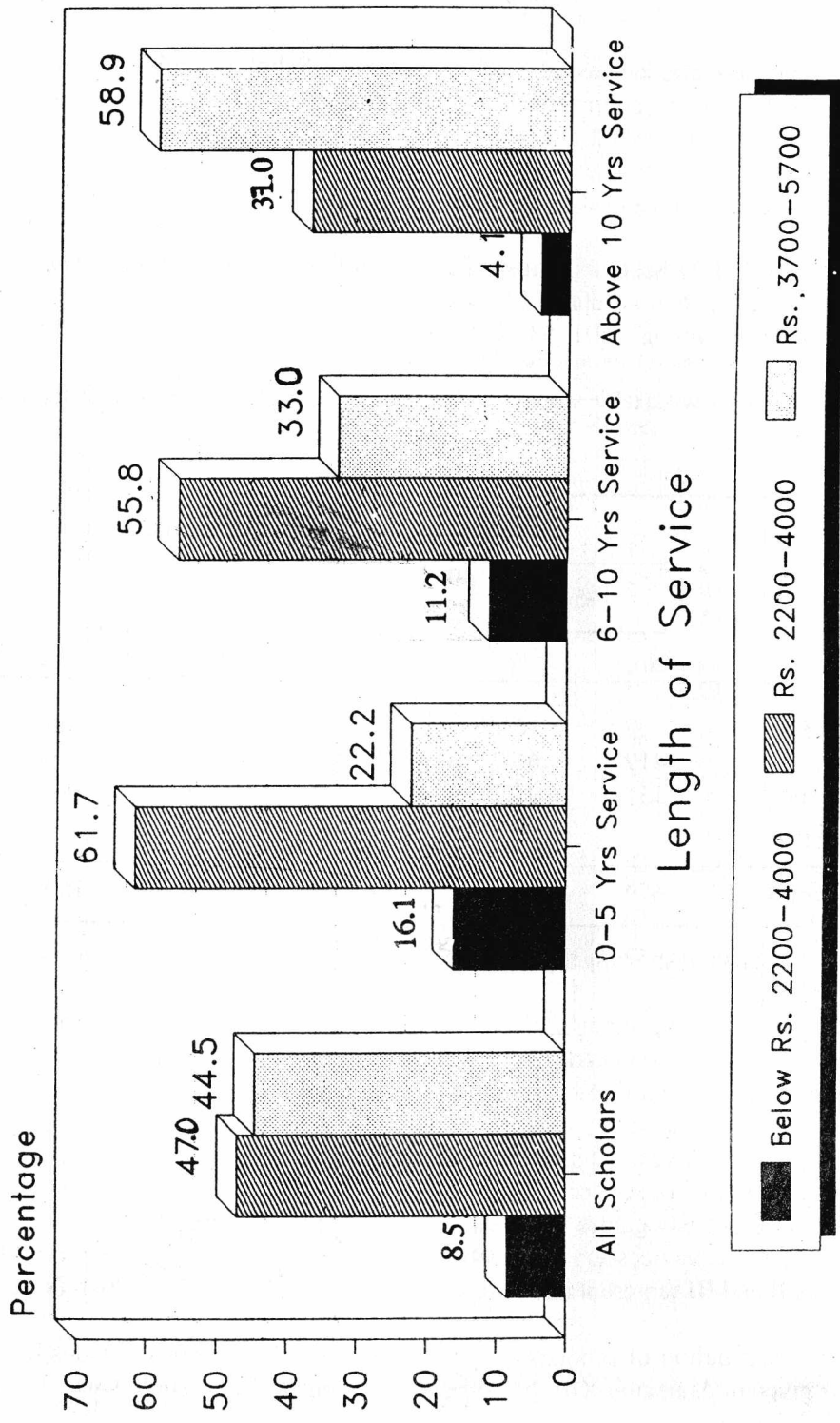
Pay Grade	Length of Service in years					
	0-5		6-10		Above 10	
	No.	%	No.	%	No.	%
(-) I	109	16.1	78	11.2	66	4.1
I	419	61.7	387	55.8	593	37.0
II and Above	151	22.2	228	33.0	942	58.9
Total	679	100.0	693	100.0	1601	100.0

A bar chart showing the above distribution has also been drawn. It may be seen at the next page.

7.4 It is seen that among scholars having service over 10 years, there are as many as 659 (41.1%) who are holding either (-) I Grade or Grade I. With service of 6-10 years, the percentage of such scholars is 67 and with service of upto 5 years the percentage of such scholars is 77.8. It is also noted with concern that of the scholars who have put in service upto 5 years, 16.1% are holding (-) I Grade, of the scholars who have put in 6-10 years of service, 11.2% are holding (-) I Grade and of the scholars who have put in more than 10 years of service 4.1% are holding (-) I Grade. (As clarified in Chapter V of this Report (-) I Grade refers to pay grades lower than Rs. 2200-4000 which is the entry scale for direct recruits in Group A organised services and for all other Group A posts. Grade I denotes pay scales of Rs. 2200-4000 and Grades II and III represent pay scales of Rs. 3700-5700 and Rs. 5900-7300 respectively).

7.5 Distribution of scholars by professions, length of service, grades held and broad subject groups is given in Annexure XIII. It is observed that out of 2973 scholars who furnished the data, 1749

Grades Held by Scholars By Length of Service put in by them



are in the teaching organisations 995 are engaged on research organisations and 229 are engaged on work other than research and teaching.

7.6 Of the scholars in the teaching organisation, 17.8% have put in service upto 5 years, 20% have put in 6-10 years of service and the remaining 62.2% have put in more than 10 years of service, Grade-wise distribution of these scholars is as under:

Scholars engaged in teaching organisation

Pay Grade	Length of Service in years					
	0-5		6-10		Above 10	
	No.	%	No.	%	No.	%
(-) I	30	9.6	22	6.3	28	2.6
I	235	75.3	242	69.1	481	44.3
II	41	13.2	77	22.0	450	41.4
III	6	1.0	9	2.6	128	11.7
Total	312	100.0	350	100.0	1087	100.0

7.7 Similar tables showing pay grades and length of service by the scholars engaged in research and on work other than teaching and research are given below:

Scholars engaged in research organisation

Pay Grade	Length of Service in years					
	0-5		6-10		Above 10	
	No.	%	No.	%	No.	%
(-) I	62	20.6	43	15.9	26	6.1
I	155	51.6	122	45.2	90	21.2
II	63	20.8	88	32.6	199	46.9
III	21	7.0	17	6.3	109	25.8
Total	301	100.0	270	100.0	424	100.0

Scholars engaged in organisations other than research & teaching

Pay Grade	Length of Service in years					
	0-5		6-10		Above10	
	No.	%	No.	%	No.	%
(-) I	17	25.8	13	17.8	12	13.3
I	29	43.9	21	28.8	22	24.5
II	15	22.7	35	47.9	31	34.4
III	5	7.6	4	5.5	25	27.8
Total	66	100.0	73	100.0	90	100.0

7.8 It would be noticed from the foregoing three tables that the percentage of scholars in (-) I Grade in teaching profession is the least. The number and percentage of scholars in Grade I and above is also higher in the teaching profession. This suggests that the teaching profession is most favourably placed from the point of view of initial employment opportunity, research comes next. Occupations other than teaching/research have the least favourable employment opportunities at initial stages.

7.9 From the table given in para 7.3, it would be seen that of the scholars holding Grade II or higher positions, 151 have put in 0-5 years of service, 230 have put in 6-10 years and 942 have put in service of 10 years and above. Their break-up by profession is as under.

Scholars holding Grade II or higher positions

Length of Service	Teaching	Research	Others	Total
0-5 Years	47 (6.6%)	84 (16.9%)	20 (17.4%)	151 (11.4%)
6-10 Years	86 (12.1%)	105 (21.1%)	39 (33.9%)	238 (17.2%)
10 Years & Above	578 (81.3%)	308 (62.0%)	56 (48.7%)	942 (71.4%)
Total	711 (100.0%)	497 (100.0%)	115 (100.0%)	1323 (100.0%)

It would be observed that the percentages of Grade II and higher posts held by scholars with 0-5 years of service in Teaching, Research and 'others' are 6.6, 16.9 and 17.4 respectively. In case of scholars with 6-10 years of service, the corresponding percentages are 12.1, 21.1 and 33.9 . For scholars with service of over 10 years the relevant percentages are 81.3, 62.0 and 48.7.

7.10 It may be seen from these percentages that in teaching more than 80% of the scholars could reach grade II or higher position after a minimum of 10 years. of service. This percentage is relatively lower in the case of research and other organisations. This could be partly due to the fact that the percentage of Grade II or higher positions are more in research and non teaching organisations than in teaching. It could also be due to the fact, the number of years of work experience plays an important role for selection to higher positions in teaching organisations.

CHAPTER VIII

INTER SUBJECT CAREER PROSPECTS OF Ph.Ds IN THE TEACHING, RESEARCH AND OCCUPATIONS OTHER THAN TEACHING/RESEARCH

Career prospects in teaching

Distribution of Ph.D Scholars employed on teaching by age groups and pay grades under various subject groups/subject is given in Annexure XIV.

8.2 Of the 3200 Ph.D Scholars who had responded to the IAMR questionnaire, 1749 engaged on teaching . Pay gradewise distribution of the Ph.D scholars engaged on teaching is as under :

Pay grade	No. and percentage of scholars
(-) I	76(4.3%)
I	974(55.1%)
II	575(32.5%)
III	143 (8.1%)

8.3 Of the 76 scholars holding (-) I Grade, 8 scholars are in the age group upto 30 years, 52 in the age group 30-39 years and 16 in the age group 40-49 years. Subjectwise distribution of scholars in (-) I Grade is the highest in Chemistry (19), followed by Botany (15), Zoology (14), Mathematics (12), Physics (5), Agricultural Sciences (3), Biochemistry, Geography and 'Biology-others' (Physiology, Genetics, Aquatic Biology, Life Sciences etc.) -2 each and one in the miscellaneous group consisting of Anthropology, Home Science, Library Science etc.

8.4 In the Technological Science group consisting of Civil, Mechanical, Electrical, Electronics, Computers Science, Chemical Technology and other engineering disciplines, no scholar below 30 years has acquired Ph.D. This suggests that in these subjects scholars pursue the Ph.D courses at a later age. Nuclear Physics, Medical Sciences, Veterinary Sciences, Geography, Geo-physics and Anthropology etc. also fall in this category.

8.5 From the analysis given in the preceding paragraph, it also follows that in these subjects it may be relatively easier to get suitable employment without doing Ph.D.

8.6 In the group upto 30 years, 14.6% of the scholars are in (-) I Grade, 81.9% in Grade I and 3.6% in Grade II. There are only 2 subjects namely Chemistry and Mathematics in which the scholars have attained Grade II in this age group.

8.7 Comparing subjectwise career prospects in terms of pay grades, Medical Sciences are at the top, the percentage of Ph.Ds holding pay Grade III being highest in Medical Sciences, viz. 47.1%. Medical

Sciences are followed by Electrical Engineering (44.8%), Mechanical Engineering (36%), Civil Engineering (29.6%), Electronic and Computer Engineering (26.3%), Chemical Engineering (21.1%), and 'Engineering -others' comprising Mining Engineering, Aeronautic, Aero-space, Soil Dynamics etc. (20.8%).

8.8 Subjects having no scholar in pay Grade III are Nuclear Physics, Statistics, Geography, Geophysics and Anthropology. Other subjects with low percentage of scholars in pay Grade III are Botany (1.9%), Physics (2.0%), Chemistry (2.8%), Geography (3.7%), Mathematics (4.7%), Biochemistry (4.8%) and Biology (10.2%).

8.9 Another way of looking at the relative career prospects in different subject groups/subjects could be by comparing the percentage of Ph.D scholars holding Grade II and above positions put together. Subject-groupwise total number of scholars having teaching as their career and the number and percentage of scholars having Grade II and above positions in each subject group is as under :

Number and percentage of scholars holding Grade II and above

Subject Group	Total No. of Scholars (Teaching)	No. & Percentage of Scholars holding Grade II and above positions
Physical & Mathematical Sciences	733	222 (30.3%)
Technological Sciences	202	167 (82.7%)
Agricultural Sciences	181	111(61.3%)
Medical Sciences	17	13 (76.5%)
Veterinary Sciences	41	37(90.2%)
Bio-Sciences	515	139(27.0%)
Geo-Sciences	67	24 (35.8%)
Anthropology and Others	12	5 (41.7%)

(Figures in brackets are percentages worked out against total scholars)

8.10 It is seen that Veterinary Sciences, Technological Sciences and Medical Sciences have the highest percentage of Grade II and Grade III position holders. The lowest percentage of Grade II and Grade III position holders is in the Bio-Sciences and Geo-Sciences.

Career prospects of Ph.Ds engaged on research

8.11 Of the 3,200 Ph.D Scholars who had responded to the IAMR questionnaire, 1,006 are predominantly engaged on research. Distribution of such scholars by age groups and pay grades under various groups/subject is given in Annexure XV.

8.12 It is observed that the percentage of scholars holding (-) I Grade is 13.2 Examination of the distribution of scholars holding (-) I Grade by subjects reveals that the highest percentage is in

Anthropology (57.1%), followed by Chemical Technology (50.0%), Zoology (35.1%) and Botany (28.6%). Subjects which do not have any scholars working in (-) I Grade are Nuclear Physics, Statistics, Civil Engineering, Electrical Engineering, Electronics & Computer Sciences, and Medical Sciences.

8.13 It is also observed that no scholar below 30 years has acquired Ph.D in the Technological Sciences Group, Nuclear Physics, Mathematics, Statistics, Medical Sciences, Veterinary Sciences, Zoology and Anthropology. This pattern reinforces the conclusion earlier drawn in case of Ph.D scholars engaged on teaching. It also confirms the inference that it may be relatively easier to get suitable employment without doing Ph.D in these subjects.

8.14 Judging the relative career prospects in different subject groups/subjects by comparing the percentage of Ph.D scholars holding Grade II and above positions put together, the Technological Sciences Group seems to be placed most favourably. In this group, 49 out of 68 scholars (72.0%) hold Grade II or higher positions. Within the group 'Engineering - others' is on the top, 15 out of 16 Ph.Ds holding Grade II and above positions. Subjects with the next highest percentage of scholars holding Grade II and above positions in this group are Electronics and Computer Sciences, Mechanical Engineering and Civil Engineering. The percentage of scholars holding Grade II and above positions in these subjects are 77.8%, 75.0% and 73.3% respectively.

8.15 Bio-Sciences group is the lowest in the ladder with only 34.0% (94 out of 285) scholars holding positions in Grade II and above. Within the group, Zoology and Botany rank the lowest with 24.2% and 21.4% scholars holding Grade II and higher positions.

8.16 In terms of inter-se subject career prospects, Zoology and Botany are the worst placed with highest percentage of scholars in (-) I Grade and lowest percentage of scholars in Grade II and higher positions. Interestingly the turn-over of scholars in these subjects is also very high.

Career prospects in occupations other than Teaching and Research

8.17 Distribution of Ph.Ds engaged on work other than research and teaching by age groups and pay grades under various subjects/groups/subjects is given in Annexure XVI.

8.18 Of the 3,200 Ph.D scholars who had responded to the IAMR questionnaire, only 235 are engaged on work other than research and teaching. Of these 19.2% are in (-) I Grade, 30.6% in Grade I and the remaining 50.2% in Grade II and higher positions.

8.19 'Engineering -other ' (Mining Engineering and Aeronautical Engineering) and Chemical Engineering have the highest percentage of scholars 50.0% each-holding (-) I Grade. Subjects with the next highest percentage of scholars holding (-) I Grade are Bio-Chemistry (40.0%), Chemistry (33.9%), Zoology (33.3%), Mathematics (28.6%), Botany (22.2%), 'Biology-others' (14.3%), Physics (11.8%) and Agricultural Sciences (10.9%).

Career prospects of male versus female scholars

8.20 A comparison of career prospects of male and female scholars in the professions, namely, teaching, research and occupations other than research and teaching is given in Annexures XVIII, XIX and XX respectively.

8.21 It is observed that in all the professions females are relatively worse off.

8.22 In the teaching profession, 3.4% of the males are in (-) I Grade whereas the corresponding percentage for females is 11.5 . Again, the percentage of males in Grade II and above positions is 43.2 whereas the corresponding percentage for females is 19.9 only.

8.23 In research the percentage of males holding (-) I Grade is 10.9 whereas the corresponding percentage for females is 31.5 . The percentage of males holding Grade II and above positions is 53.4 whereas the corresponding percentage for females is 27.0.

8.24 Professions other than teaching and research are in no way different. The percentage of males holding (-) I Grade is 16.4 whereas the corresponding percentage for females is 47.6. The percentage of males holding Grade II and above positions is 52.3 whereas the corresponding percentage for females is 28.6 only.

CHAPTER IX

REASONS FOR ACQUIRING Ph.D AND THE EXTENT OF REALISATION OF THE OBJECTIVES

Reasons for acquiring Ph.D

Ph.D Scholars were asked to specify the reason(s) for doing Ph.D in the questionnaire from amongst the following:

- a) sponsored by the organisation/employer,
- b) meet mandatory requirement of the organisation in which employed,
- c) get a particular job in view,
- d) improve career prospects,
- e) genuine desire for enhancement of knowledge/skill in the relevant subject/field,
- f) any other reasons (to be specified)

9.2 The number of scholars who responded to this question is 2853. Distribution of scholars according to reasons for doing Ph.D by subject groups/subjects is given in Annexure XXI. The aggregate percentage which is more than 100 is indicative of the fact that many scholars had specified more than one reason for doing Ph.D Analysis of responses for males and females separately is given in Annexure XXII.

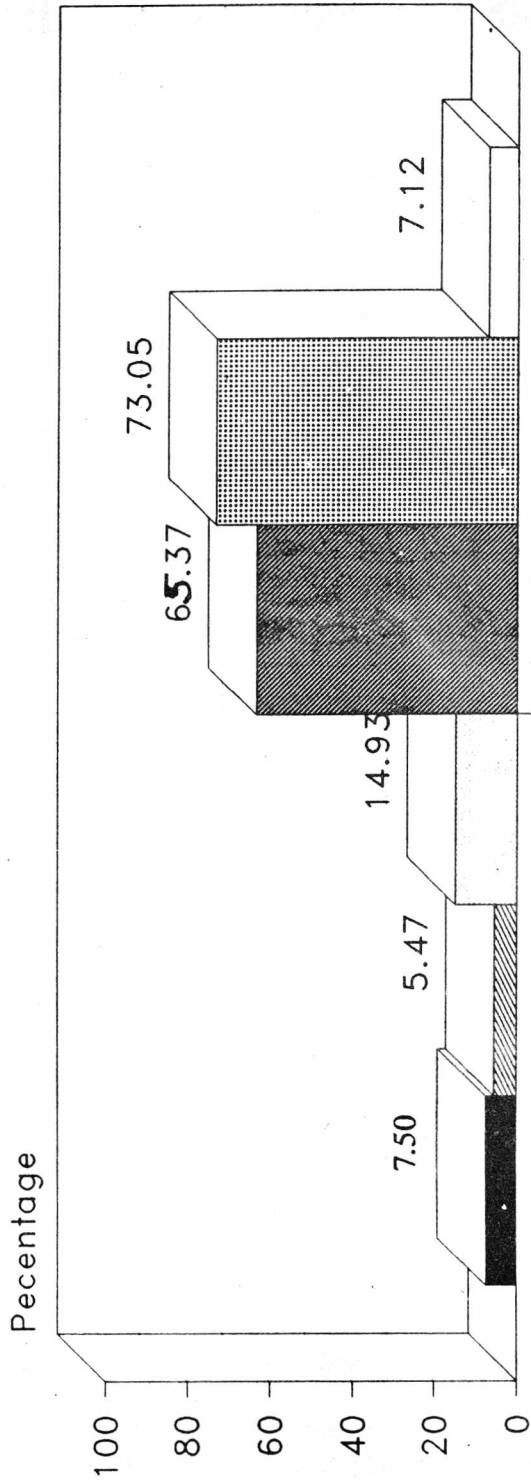
9.3 The percentage of responses for all the subject put together against specific reasons for doing Ph.D in order of importance is as under :

i) Genuine desire for enhancement of knowledge/skill in the relevant subject/field	73.1%
ii) Improved career prospects	65.4%
iii) Get a particular job in view	14.9%
iv) Sponsored by the organisation/employer	7.5%
v) Meet mandatory requirement of the organisation in which employed	5.5%
vi) Any other reasons (to be specified)	7.1%

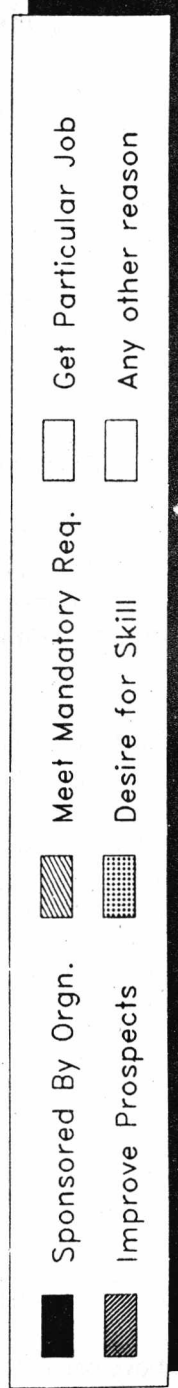
The above percentages have also been depicted in the chart and may be seen at the preceding page.

9.4 The analysis of responses done separately for male and female scholars indicates the following percentages against various reasons for doing Ph.D in the order listed below:

Percentage of Scholar's Reasons for doing Ph.D



Reasons for Doing Ph.D



	Male	Females
i)	71.7%	82.9%
ii)	65.0%	68.3%
iii)	14.1%	21.2%
iv)	7.8%	5.2%
v)	5.7%	3.8%
vi)	7.4%	5.2%

9.5 The above table shows that a higher percentage of female scholars do their Ph.D for enhancing their knowledge as also for improving their career prospects and securing particular positions as compared to male scholars.

9.6 Subjectwise analysis of the reasons for doing Ph.D indicates that there are 5 subjects in which the highest percentage of scholars did their Ph.D for improving their career prospects. These are Biochemistry (79.2%), Chemical Technology (76.5%), Statistics (74.3%), Agricultural Science (73.6%) and Geography (65.6%). In all other subjects, one of the reasons that attracted scholars towards Ph.D was 'desire for enhancement of knowledge/skills'. Subject in which more than 80% of the scholars did their Ph.D for enhancing their knowledge are Physics (87.8%), Nuclear Physics (87.5%), Medical Sciences (87.0%), Zoology (85.5%), Geology (82.4%) and Chemical Engineering (80.7%).

9.7 Subject with the lowest percentages are Chemical Technology (47.1%), Agricultural Sciences (61.5%), Veterinary Sciences and Geography (62.5% each), Chemistry (65.2%) and Geo-Physics (68.4%). This suggests that scholars in these subjects have relatively lower desire for enhancement of knowledge.

Extent of realisation of the objectives

9.8 Apart from specifying the reasons for doing Ph.D, scholars were asked to indicate whether they have achieved the purpose or purposes of the Ph.D. Of the 2739 scholars who responded to this question, 1732 (63.2%) stated that they could attain their objective(s) wholly, while 686 (25.1%) stated that their objectives were achieved partially. As many as 321 scholars (11.7%) reported that they could not fulfil the purpose for which they did the Ph.D. A statement indicating the number of scholars who could attain their objectives fully or partially as also those who could not attain their objective by age groups and subjects is at Annexure XXIII. Similar analysis for males and females separately by various subjects groups is given in Annexure XXIV.

9.9 Age groupwise analysis indicates that the percentage of scholars whose objectives were realised fully was the lowest (59.0%) in the youngest age group i.e. below 30 years. This percentage was the highest (65.2%) in the age group 30-39 years. The corresponding percentages for the age group 40-49 years and 50 years and above are 61.0 and 60.8.

9.10 Taking together the scholars who realised their objectives either fully or partially, the age group most favourably placed are 40-49 years and 50 years and above, the percentage of scholars attaining satisfaction being 89.6 and 88.4 respectively. This indicates that Ph.D taken at a relatively higher age yields better realisation of objectives.

9.11 In terms of inter-se subject comparison, the percentage of scholars who would attain their objectives fully was highest in Computer Science (75.9%), followed by Chemical Engineering (74.2%), Statistics (73.3), Geo-physics (72.2%), Nuclear Physics (71.5%), Zoology (68.5%), Biology-others (70.9%) and Agricultural Sciences (70.3%).

9.12 Age-groupwise comparison between the two sexes indicates that the percentage of scholars who could attain their objectives fully was as under :

Age group	Males	Females
Below 30 years	65.6%	34.6%
30-39 years	66.2%	59.8%
40-49 years	60.7%	64.9%
50 and above	61.7%	45.5%
All ages	63.9%	58.2%

9.13 It is seen higher percentages of male scholars could attain their purposes as compared to females in every group except the age group 40-49 years. It is also observed that in the age-groups below 30 years and 50 years and above, the difference in the extent of realisation of the objectives between the two sexes is very striking, the odds being heavily against the females.

Linkage of qualifications with employment

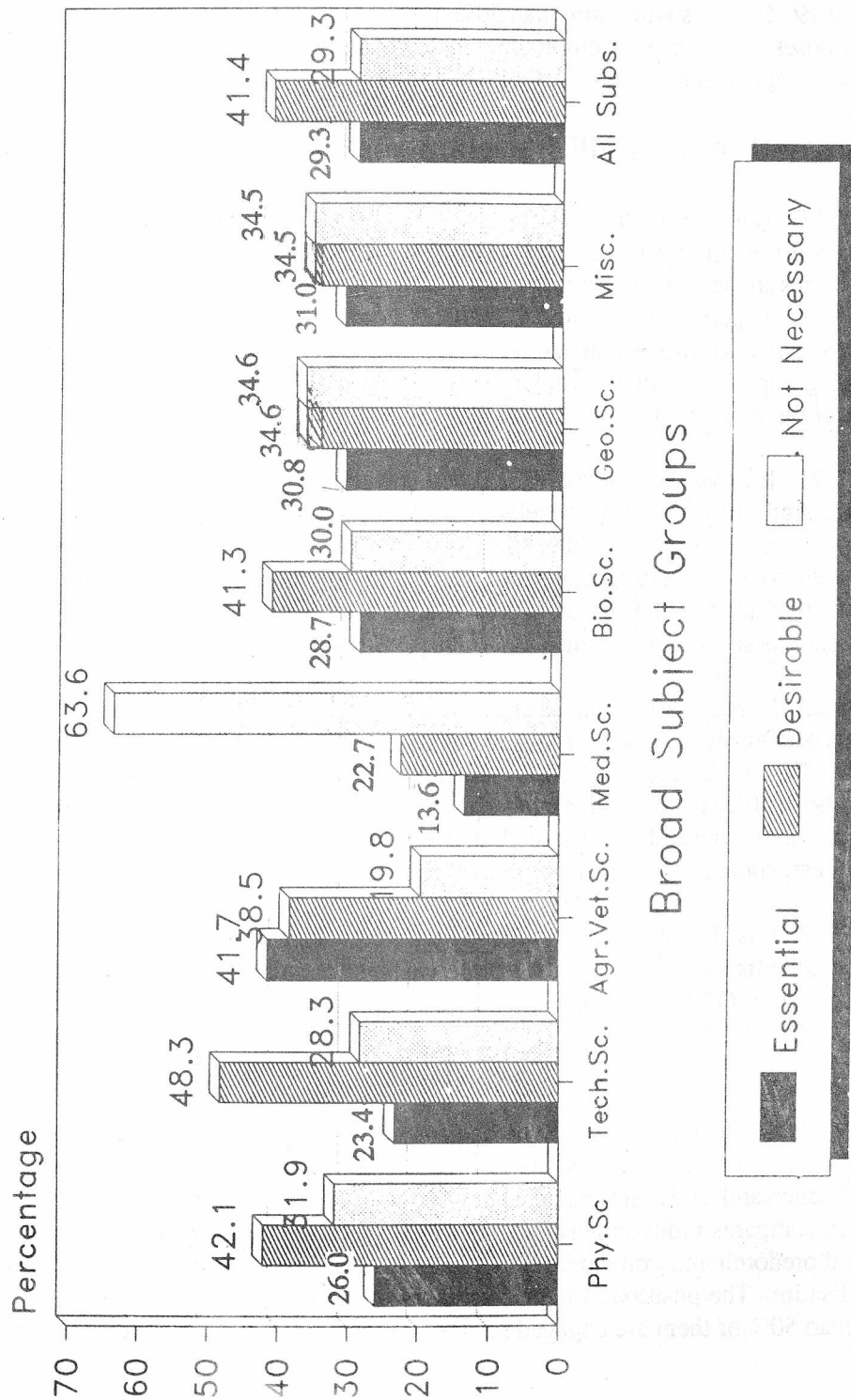
9.14 Ph.D. scholars selected for the sample study were asked to indicate the qualifications prescribed for the post held by them. 2906 scholars responded to this question. Of them 853 (29.3%) stated that Ph.D degree was an essential qualification for the position held by them while 1202 (41.4%) scholars indicated that Ph.D was a desirable qualification for the posts they were holding. For jobs held by the remaining 851 scholars (29.3%), Ph.D degree was neither essential nor desirable. A bar chart depicting the linkages has been drawn which is on page 31.(a).

9.15 Of the 2906 scholars, 2593 were males and 313 were females. Of the male scholars 29.5% reported that Ph.D was neither an essential nor a desirable qualification for the jobs they were holding. The corresponding percentage for females was 27.8. This shows that in terms of linkage of qualification with employment, males and females are by and large at par.

9.16 Subject group/subjectwise distribution of Ph.D scholars showing linkage of Ph.D with employment is given in Annexure XXV. A similar analysis for males and females separately by subject groupwise is given in Annexure XXVI.

9.17 Subjectwise comparison has revealed that Medical Sciences, Geology, Botany and Geo-physics top the list of subjects in which Ph.D degree was not needed by scholars for the purpose of their present employment. Percentages of scholars falling in this category in these subjects were 63.6, 42.1, 37.7 and 37.5 respectively. The lowest percentage of scholars not requiring Ph.D for the posts they were holding is in Statistics (12.5%) followed by Geography (19.4%), Biology-others' (19.6%) and Agricultural Sciences (19.7%).

Percentage of Scholar's Perception of Ph.D Degree



9.18 Subjects with the highest percentage of scholars reporting Ph.D as an essential qualification for the jobs they were holding were Veterinary Sciences (63.5%), Chemical Technology (43.9%), Biochemistry (43.8%) and Geography (41.9%).

9.19 Subjects with more than 50% of the scholars reporting Ph.D as a desirable qualification for the purposes of their present employment were Nuclear Physics, Civil Engineering, Chemical Engineering and 'Engineering -others'.

Duties and responsibilities versus specialisation

9.20 With a view to assessing the linkage between the field of specialisation and the duties and responsibilities being performed by the Ph.D scholars, the scholars were asked to give a brief description of the duties and responsibilities attached to their present post and also to indicate whether or not the work they were engaged on was related to their field of specialisation either wholly or partially. In all, 3022 scholars responded to this question. The responses received in this regard have been analysed subjectwise and age-groupwise for all the scholars as per Annexure XXVII. A similar analysis for males and females separately is given in Annexure XXVIII.

9.21 It is seen that out of 3022 scholars who had responded to the question, 1741 (57.6%) were predominantly engaged on work relating to their field of specialisation, 863 (28.6%) were engaged on work partly related to their field of specialisation and the remaining 418 (13.8%) were engaged on work not related to their field of specialisation. Such a large percentage (42.4%) of scholars doing work wholly or partly unrelated to their field of specialisation suggests that there is an urgent need for review of job specifications so as to link them with job requirements.

9.22 It is also noted that as age advances the percentage of scholars doing work relating to their field of specialisation goes up. The percentage of such scholars in the age group upto 30 years was 52.85. It was 54.71% in the age group 30-39 years, 61.17% in the age group 40-49 years and 65.78% in the age group above 50 years. From this analysis it follows that at the initial stages the scholars accept whatever job comes their way and while at work they keep on trying to get into areas of their specialisation and in the process, some of them do meet with success.

9.23 It is also observed that the highest percentage of scholars engaged on work related to their field of specialisation (72.7%) is in the Medical Sciences group followed by Agricultural, and Veterinary Sciences group (71.7%). Technological Sciences, Geo-sciences, Bio-Sciences and Physical Sciences have 69.0%, 64.9%, 53.9% and 50.29% scholars respectively engaged on work related to their areas of specialisation.

9.24 Of the 3022 scholars who had responded to the question under references, 2700 were males and 322 were females. Of the males 58.9% are engaged predominantly on work related to their specialisation and 27.7% are engaged on work related partly to their specialisation. The position of female scholars compares unfavourably to that of male scholars. In case of female scholars, only 46.9% are engaged predominantly on work related to their specialisation and 36% on work related partly to their specialisation. The position of female scholars in Bio-Sciences and Physical Sciences is still worse as more than 50% of them are engaged on work not related to their areas of specialisation.

CHAPTER X

PAY VERSUS QUALIFICATIONS AND EXPERIENCE

To assess the linkage between the pay grades held by the Ph.D Scholars and their qualifications and experience, the Ph.D Scholars were asked to indicate specifically whether the positions they were holding were commensurate with their qualifications and experience.

12.2 Analysis of the responses of the Ph.D Scholars has revealed that of the 3021 scholars who furnished the relevant data, only 1465 (48.5%) considered their pay grades to be commensurate with their qualifications and experiences. From age-group to age-group, the level of satisfaction differs but the range of variation is not very wide. The percentage of scholars considering their pay grades to be commensurate with their qualifications and experience is 45.9% in the age group below 30 years, 48.3% each in the age groups 30-39 years and 40-49 years and 52.7% in the age group 50 and above.

12.3 The subject in which the highest percentage of scholars (72.2%) considered their pay grades to be commensurate with their qualifications and experience is Veterinary Sciences followed by Agricultural Sciences (62.8%), Electronics and Computers Science (65.5%), and Medical Sciences (63.6%). The subject in which the lowest percentage of scholars (38.4%) are satisfied with their present pay grade is Zoology.

12.4 Of the 3021 scholars who furnished relevant data 2699 were males and 322 were females. Of the male scholars 48.7% were satisfied with their pay grades vis-a-vis qualifications and experience and the percentage of such scholars among females was 46.6.

12.5 Age groupwise comparative percentage of male and female scholars satisfied with their present pay grades is as under :

Age group	Male	Female
Below 30 years	42.9	58.3
30-39 years	49.0	43.9
40-49 years	48.4	45.8
50 years and above	51.2	81.8

12.6 In terms of comparison of broad subject groups, Agricultural & Veterinary Science and Medical Science have high percentage of satisfied male scholars (61.1) and (73.3) respectively. This is followed by Geo-Sciences (51.9%), Technological Sciences (45.8%), Physical Sciences (45.4%), Bio-Sciences (44.5%) and the Miscellaneous Subjects groups (34.8%).

12.7 Among females, Technological Sciences have the highest percentage of scholars (80%) reporting satisfaction in terms of their pay grades vis-a-vis qualifications and experiences. This is

followed by Miscellaneous Subjects group comprising Anthropology etc. (66.7%), Agricultural and Veterinary Sciences (57.1%), Bio-Sciences (45.2%), Physical Sciences (44.4%) and Geo-Sciences (40.0%).

12.8 The number and percentage of Ph.D Scholars reporting satisfaction with their pay grades by age groups and by individual subjects is given in Annexure XXIX. Similar analysis for males and females separately by different age groups and broad subject groups is given in Annexure XXX. Considering that more than half of the Ph.D scholars view their pay grades as not commensurate with the qualifications and experience held by them, it would be desirable for organisations employing large compliments of Ph.Ds to undertake indepth reviews of the job specifications and the cadre structures with a view to ensuring an appropriate linkage between pay grades vis-a-vis qualifications and experience.

CHAPTER XI

PREPARATION/PUBLICATION OF RESEARCH PAPERS AND TECHNICAL NOTES

To assess whether and to what extent, the Ph.D Scholars sustained their interest: in research work after doing Ph.D, details of the scientific and technical papers/reports prepared and published along with the years of publication were elicited.

13.2 2866 scholars furnished necessary information. The analysis of the responses revealed that 65.3% of the scholars sustained their interest in research work even after award of Ph.D. It has also been observed that in the age group below 30 years, the highest percentage of scholars (74.4) engaged themselves on writing of research papers/scientific and technical reports. For the higher age groups namely 30-39 year, 40-49 years and 50 and above, the corresponding percentages were 66.6, 62.1 and 64.0 respectively.

13.3 Subjectwise comparison revealed that Biology (others) has the highest percentage of scholars (76.7%) evincing interest in research papers. The subjects with next highest percentage of scholars evincing interest in preparation of scientific/technical papers are Nuclear Physics (75%), Statistics (74.3%), Medical Sciences (73.9%), Geo-Physics (73.7%), Zoology & Bio-Chemistry (73.5%) each and Physics (70.9%).

13.4 The subject with the lowest percentage of scholars (45.5) evincing interest in preparation/publication of research papers/technical papers excluding the miscellaneous group is Mathematics followed by Civil Engineering (53.3%), Veterinary Sciences (57.1%), Electronics and Computers Sciences (58.6%).

13.5 Of the 2866 scholars who furnished the relevant data, 2522 were males and 344 females. Of the male scholars, 66.2% had sustained interest in research work whereas in case of females this percentage was 59.0 only.

13.6 Subjectwise and age groupwise distribution of scholars sustaining interest in research work is given in Annexure XXXI. Similar details for males and females separately are given in Annexure XXXII.

13.7 Data regarding the number of research papers written by each scholar before as well as after the award of Ph.D has also been provided by 2684 scholars. Results of their analysis have been tabulated vide Annexure XXXIII. This analysis indicates that :

- * each scholar on an average had written 11 papers, the average for male being 12, and for females 8.
- * average number of papers written by scholars who had put in service upto 5 years, 6-10 years, 11-20 years and above 20 years were 9,9,12,14 respectively.

- * On an average each scholar had written 5 papers before doing the Ph.D as against 6 after doing the Ph.D.
- * Average number of papers written per scholar in Medical Sciences was the highest namely 35.
- * Average number of papers written was the lowest (9) in Physical & Mathematical Sciences. The number of papers written was 4 before doing Ph.D and 5 after that.
- * Average number of papers written per scholar after award of Ph.D was higher than before the award of Ph.D in Physical & Mathematical Sciences, Agr. & Vet. Sciences, Medicine, Bio-Sciences & Miscellaneous subject groups.
- * The level of interest in writing of research papers remained the same before and after Ph.D in Technological Sciences and Geo-Sciences.

For the female scholars

- * The interest in publishing papers was low as compared to their male counterparts in all service groups.
- * The interest of female workers in publishing papers waned after award of Ph.D in 6-10 yrs & above 20 years service groups but increased in the other two (0-5 & 11-20 yrs) service groups.

CHAPTER XII

INVOLVEMENT OF SCHOLARS IN THE PROJECTS

The scholars were asked to furnish information about their involvement in the projects. 3,013 scholars furnished the information. The information received was tabulated by subject group and the number of projects each person was handling. For the purpose of this analysis all the questionnaire received till date were taken into consideration. The results have been presented in the following table.

14.2 It is noted that out of 3,013 scholars, 44.0% were not having any project, 25.6% were engaged on one project each, 14.8% were on two projects, 8.3% on three projects and the remaining 7.3% were engaged on four projects each.

14.3 Amongst the subject groups, the highest percentage of scholars not engaged on projects was under 'Physical and Mathematical Sciences' (57.2%) followed by subject groups Miscellaneous (45.1%), Bio-Sciences (37.8%) and Technological Sciences (34.3%). The lowest percentage of scholars not engaged on any project was under 'Medical Sciences' (26.1%).

14.4 The percentage of scholars having one project each amongst the subject groups varies from 4.3% to 30.6%.

Distribution of Scholars by No. of Projects and Subject Group

S. No.	Subject Group	Number of Projects					Total
		Nil	One	Two	Three	Four	
1.	Physical and Math. Sciences	684 (57.2)	267 (22.3)	150 (12.5)	66 (5.5)	29 (2.5)	1196 (100.0)
2.	Tech. Sciences	115 (34.3)	79 (23.6)	54 (16.1)	32 (9.5)	55 (16.5)	335 (100.0)
3.	Agr. and Vet. Sciences	114 (32.0)	109 (30.6)	62 (17.4)	31 (8.7)	40 (11.3)	356 (100.0)
4.	Medical Sciences	12 (26.1)	2 (4.3)	4 (8.7)	12 (26.1)	16 (34.8)	46 (100.0)
5.	Bio-Sciences	344 (37.8)	267 (29.4)	152 (16.7)	85 (9.4)	61 (6.7)	909 (100.0)
6.	Geo-Sciences	40 (28.6)	41 (29.3)	23 (16.4)	21 (15.0)	15 (10.7)	140 (100.0)
7.	Miscellaneous	14 (45.1)	7 (22.7)	2 (6.5)	3 (9.6)	5 (16.1)	31 (100.0)
8.	Total (all Subject)	1323 (44.0)	772 (25.6)	447 (14.8)	250 (8.3)	221 (7.3)	3013 (100.0)
9.	No. of Projects	Nil	772	894	750	884	3300

The highest percentage of scholars having one project is in the subject group Agriculture and Veterinary Sciences (30.6%) and the lowest is in Medical Sciences (4.3%). The percentage of scholars having two projects each amongst the subject groups varies from 6.5% (Miscellaneous) to 17.4% (Agricultural & Veterinary Sciences). In case of scholars having three and four projects the highest is in the Medical Sciences (26.1% & 34.8% respectively) and the lowest is in Physical and Mathematical Sciences (5.5% and 2.5% respectively).

Overall, there are 3,300 projects on which 1,690 scholars are working. On an average each scholar is working on two projects. 1323 scholars are not having any project.

14.5 The project data furnished by the scholars was analysed in detail for selected subjects. These subjects are: Physics, Nuclear Physics, Electronics and Computer Science, Chemical Engg. Chemical Technology and Pharmacology, Medical Sciences, Bio-Chemistry and Geophysics. In this detailed analysis, information on source of funding and duration of project was also tabulated (See Annexure XXXIV). The results of this analysis are as follows:

- * Maximum projects (33.8%) are funded by Public Sector Organisations followed by Ministries/ Departments (17.4%)
- * Only 10.7% projects are funded by various Universities.
- * Projects funded by Private Sector are 8.3%.
- * Average duration of project is highest in case of University Grants Commission (3.1 years i.e. 37 months) and lowest in case of Public Sector Organisations (2.0 years i.e. 24 months).
- * Overall average duration of projects is 2.5 years i.e. 30 months. The highest is in the case of Geo-Physics (3.8 years) and lowest is in case of Electronics and Computer Sc. (2.0 years).
- * Overall percentage of scholars engaged in projects is 39.4%. This is highest for Chemical Technology (72.2%) followed by Geo-Physics (63.2%), Electronics and Computer Sciences (60.7%) and Biochemistry (55.0%).
- * The subjectwise detailed tabulation for projects has been appended at Annexure XXXV.
- * Analysis of Annexure XXXV reveals that the number of project decline with increase in their duration.
- * The analysis of Annexure XXXV reveals that in Medical Science there are highest percentage of projects (55.00%) whose duration is one year. This is lowest in case of Geo-Physics (16.67%).
- * Where project duration is 2 years highest percentage of projects are in the Chemical Technology & Pharmacology (52.63%) and the lowest in Nuclear Physics (12.5%).
- * Where project duration is 3 years highest percentage of projects are in Nuclear Physics (50.00%) and the lowest is in Chemical Technology and Pharmacology where nobody is engaged on such projects.

- * Where project duration is 4 years highest percentage of projects are in Geo-Physics (29.2%) and the lowest are in Bio-Chemistry (10.0%).
- * Overall average number of projects per person is 2.0. This is highest for Medical Sciences (3.1) and is lowest for Nuclear Physics (1.3).

CHAPTER XIII

COMMERCIAL APPLICATION OF RESEARCH

Apart from eliciting details of research work done, the Ph.D scholars were asked to indicate whether the research done by them resulted in commercialisation and registration of patents together with details thereof. This information was elicited with a view to assessing the extent of application of research for commercial purposes.

15.2 The relevant data were furnished by 2873 scholars. It was found that only 55 scholars (1.9%) had their patents registered. Age groupwise distribution of these 55 scholars was as under :

Below 30 years	3
30-39 years	28
40-49 years	17
50 years and above	7

15.3 Subjectwise analysis of the patent commercialised indicated that in percentage terms, the highest number of scholars, who got their patents commercialised was in Electronics and Computer Science with 2 scholars (6.7%). The other subjects with more than 3 per cent of the scholars having got their patents commercialised were Geo-Physics - 1 (5.3%), Biology - others - 8(5.0%), Mechanical Engineering - 3 (4.5%) and Chemical Engineering 1 (3.1%). In Civil Engineering, none of the scholars got his patents commercialised although the number of responding scholars in this subject is as high as 75.

15.4 Of the 55 scholars who got their patents commercialised, 53 were males and only 2 were females. Both the female scholars belonged to the age group 50 years and above. The subject groups in which female scholars got the patents commercialised were Physical Sciences and Bio-Sciences although the number of such scholars in these subject groups was only one each out of 124 and 181 respectively.

15.5 Detailed distribution of Ph.D Scholars having got their patents registered by age groups and subjects is given in Annexure XXXVI. Break-up of these scholars by sex and broad subject groups is given in Annexure XXXVII.

CHAPTER XIV

Ph.D SCHOLARS ABROAD

Of the 3,200 scholars who responded to the IAMR questionnaire, 36 were residing abroad. Out of these 36 scholars, 32 were either employed or in receipt of fellowship grant/financial assistance for post doctoral research. The remaining 4 scholars were neither employed nor were in receipt of any financial assistance. These 4 scholars have not indicated as to what they do there and how they eke out their living.

16.2 The highest number of scholars residing abroad were Ph.D in Chemistry (10), followed by Bio-Chemistry (8), Zoology (4), Physics and Botany (3 each), Chemical Technology (2). There was one scholar each in Biology, Veterinary Sciences, Civil Engineering, Electrical Engineering, Electronics and Bio-Chemical Engineering.

16.3 Of the 4 unemployed scholars, 2 were Ph.D in Chemistry, one each in Zoology and Bio-Chemistry. One of them was below 30 years old and the other 3 were in the age group 30-39 years.

16.4 Of the employed scholars, 2 were below 30 years, 25 were in the age group 30-39 years, 4 between 40-49 years and one was in the age group 50 years and above.

16.5 Activity analysis of the 32 employed scholars revealed that 19 were engaged exclusively on research, 6 on teaching and 4 were doing both research and teaching. 2 scholars were engaged in professions other than research and teaching. There was one employed scholar who did not indicate the nature of work, he was engaged on.

16.6 18 scholars reported Ph.D degree as an essential qualification and 3 as a desirable qualification for the positions they were holding. For the positions held by the remaining 11 scholars, Ph.D was neither an essential nor a desirable qualification. Subject-wise distribution of the last category of scholars was as under:

Chemistry and Biochemistry	3 each
Zoology, Veterinary Sciences, Chemical Technology, Bio-Chemical Engineering, Electronics Engineering.	1 each

16.7 As regards the linkage between the nature of work and the field of specialisation of the scholars residing abroad, 31 scholars furnished the relevant information. Of these 24 were engaged on work predominantly related to their field of specialisation, 5 were engaged on work partly related to their field of specialisation and 2 were engaged on work unrelated to their specialisation. Both the scholars belonging to the last category were Ph.D in Chemistry.

16.8 As for the reasons for doing Ph.D and the extent of realisation of objectives, 34 scholars furnished the relevant information. The desire for genuine knowledge and improving the career prospects prompted most of the scholars to do their Ph.Ds. 23 scholars reported that their objectives were fully achieved while 6 indicated that they had realised their objectives partially. The remaining 5 scholars failed to realise their objectives.

16.9 In response to the question whether the positions held by the scholars were commensurate with their qualifications and experience, 32 scholars gave necessary information. 24 reported that their positions were commensurate with their qualifications and experience while 8 stated that the positions held by them were lower than they would expect as per their qualifications and experience. 5 of these scholars were Ph.D in Chemistry and 3 in Bio-Chemistry.

16.10 Judging the interest in research work in terms of research papers/ reports written by the scholars it is found that 27 scholars continued to take interest in research after the award of Ph.D while 8 scholars did not pursue their interest in research after doing Ph.D.

16.11 Only 3 scholars reported that they have had their patents commercialised. Of those 2 were Ph.D in Bio-Chemistry and one on Bio-Chemical Engineering. All the scholars were in the age group 30-39 years.

Growth of Ph.Ds in Science and Technology

<i>Year</i>	<i>Number</i>	<i>Year</i>	<i>Number</i>
1951	180	1969	1993
1952	218	1970	2280
1953	237	1971	2461
1954	318	1972	2547
1955	349	1973	3050
1956	414	1974	3056
1957	432	1975	3478
1958	512	1976	3465
1959	584	1977	3843
1960	713	1978	4425
1961	796	1979	4675
1962	815	1980	2973
1963	991	1981	3551
1964	1062	1982	3666
1965	1226	1983	3762
1966	1436	1984	3812
1967	1765	1985	3880
1968	2015		

Source: University Grants Commission

ANNEXURE II

Specimen format used for getting names and addresses of scholars from the University

Full Name of the Scholar		Title of thesis which led to award of doctorate	Last Address of the scholar as known to the University
Surname	First Name		
1	2	3	4

Specimen of pretesting Questionnaire
Strictly Confidential

INSTITUTE OF APPLIED MANPOWER RESEARCH

*Study on Pattern of utilisatin and career profile of
recent Ph.Ds in S & T (Sponsored by Deptt. of Science & Technology Govt. of India)*

INDIVIDUAL PROFORMA

(To be filled in by scholars holding doctorate)

1. Name
(Block Letters) _____
(Surname) (First) (Middle)
2. Sex _____
3. Date of Birth Day _____ Month _____ Year _____
4. Address for Correspondence
(Block letters) _____
Pin _____
Tel. No. (If any) _____
5. Marital Status _____
6. University/Institution
which awarded you Ph.D. _____
7. Year of Award _____
8. Subject of Ph.D. _____
9. Topic/Title of Thesis
stating the main areas of thrust _____
10. Details of Qualifications: (Graduation Onwards)

Sl. No.	Degree	University/ Institution	Year of award	Class/ grade/ Division	Subject(s)	
					Main	Subsidiary
1	2	3	4	5	6	7

11. Employment Status

Employed/Unemployed

12. Details of Employment

(Start from the present and record 3 years prior to award of Ph.D)

Sl. No.	Designation	Name of Organisation	Period Scale		Qualificaitons prescribed of Pay		Desirable
			From	To	Essential		
1	2	3	4	5	6	7	8

13. Brief description of duties and responsibilities of the present post.

14. Is your present work commensurate with your field of specialisation Yes/NO/Partly

15. A. If 'Partly' approx. what percentage of work relates to your specialisation in the present post _____

B. If 'No' does your present organisation have work relating to your specialisation Yes/No _____

If 'Yes' Name the Department(s)

If 'No' kindly name a few organisations which have work relating to your specialisation _____

C. Have you ever applied for employment in organisations listed against 'B' above Yes/No

15. Is the position held by you commensurate with your qualificaiton and experience.

Yes/No _____

If 'No' What position and pay scale do you consider appropriate in your organisation for your specialisation.

Note: You may add additional information - if any.

ANNEXURE IV : List of Science Subjects

SUBJECT LIST

1. Agricultural Sciences
2. Anthropology
3. Astronomy and Space
4. Botany
5. Zoology
6. Marine Biology, Environmental Biology, Micro-Biology, Biological Sciences.
7. Chemistry
8. Bio-Chemistry
9. Chemical Technology
10. Computer Sciences
11. Computer Information Sciences
12. Criminology
13. Demography and Population Studies
- 14.1 Engineering – Civil
- 14.2 Engineering – Chemical
- 14.3 Engineering – Communications
- 14.4 Engineering – Electrical
- 14.5 Engineering – Electronics
- 14.6 Engineering – Mechanical
- 14.7 Engineering – Others
15. Geography
16. Geology
17. Geo-Physics
18. Home Science
19. Library Science
20. Mathematics
21. Statistics
22. Medical Sciences
23. Meteorology and Oceanography
- 24.1 Physics
- 24.2 Nuclear Physics
25. Speech and Hearing
26. Veterinary Sciences
27. Miscellaneous (Demography Home Science and Population Studies, etc.)

List of Universities constituting the sample

Eastern Region Universities	No. of Ph. Ds awarded during 1980-81 to 1984-85 in S&T disciplines
1. Calcutta	713
2. Jadavapur	155
3. Bhagalpur	170
4. Bevhanpur	97
5. Sambalpur	75
6. Kalyani	108
7. Vishwa Bharti	70
8. OAU Bhubaneshwar	18
9. Birla University of Ag./ Tech	18
10. Indian School of Mines	31
11. I.I.T. Kharagpur	281
12. I.S.I. Calcutta	24
Total	1700
Western Region Universities	
1. Bombay	502
2. Nagpur	206
3. M.S. University of Baroda	130
4. Shivaji	111
5. Saurashtra	54
6. Punjabrao Krishi Vidyapeeth	44
7. Bhavnagar	51
8. Konkan Krishi	11
9. Poona	292
10. I.I.T. Bombay	206
11. Gujarat	139
Total	1746
Southern Region Universities	
1. Andhra	98
2. T.N. Ag.	107
3. Annamalai	90
4. Mysore	167
5. Kerala	87
6. UAS, Bangalore	125
7. Kerala Ag.	21
8. J.N.T.U. Hyderabad	26
9. Anna	6
10. Hyderabad	37

11. Mangalore	7
12. I.I.T. Madras	333
13. Venkateshwara	205
14. Madras	395
15. Maduarai Kamraj	55
16. Kakatiya	180
17. I.I. of Sc.	143
Total	2082

Central Region Universities

1. A.M.U.	420
2. Vikram	117
3. Dr. Hari Sing Gaur	109
4. Garhwal	160
5. G.B. Pant	150
6. Rohilkhand	93
7. Devi Ahilya	93
8. C.S. Azad	194
9. Ravi Shankar	52
10. Meerut	387
11. B.H.U.	591
12. Allahabad	131
13. Avadesh Pratap Singh	127
Total	2624

Northern Region Universities

1. Delhi	387
2. Punjab Agrl.	420
3. Rajasthan	210
4. Jodhpur	123
5. H.P. Agrl.	113
6. I.A.R.I.	401
7. I.I.T. Delhi	415
8. P.G.I.M.S.	78
Total	2147

North Eastern Region Universities

1. Dibrugarh	42
2. Manipur	2
Total	44

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INSTITUTE OF APPLIED MANPOWER RESEARCH

Study on Pattern of Utilisation and Career Profiles
of recent Ph.Ds in S & T (Sponsored by Department
of Science & Technology: Government of India)

INDIVIDUAL PROFORMA

(To be filled in by Scholars holding doctorate)

1. Name
(Block letters) _____
(Surname) (First) (Middle)
2. Date of Birth Day _____ Month _____ Year _____
3. Address of Correspondence
(Block letters) _____
_____ Pin _____
Tel. No. (If any) _____
4. (a) Sex _____
(b) Marital Status _____
(c) If married number of children _____
5. Topic/Title of Thesis Stating
the main area of thrust _____

6. Subject of Ph.D _____

7. Details of Qualifications/training: (Graduation onwards)

Sl. No.	Degree	University/ Institution	Year of award	Class/ Grade/ Division	Subject(s)	
					Main	Subsidiary
1	2	3	4	5	6	7

Note: i) If space provided for any item is insufficient, please use blank space on page 4.
ii) Please tick mark the items which are applicable and delete the ones which are not.

8. Knowledge of foreign languages, if any

	<i>Language</i>	<i>Read</i>	<i>Write</i>	<i>Speak</i>	<i>Exams passed, if any</i>
1.					
2.					
3.					
4.					
5.					

9. Employment Status Employed/Unemployed/not seeking any employment

10. Details of employment (start from the most recent employment)

<i>Sl. No.</i>	<i>Designation</i>	<i>Name of Organisation</i>	<i>Period</i>		<i>Scale of Pay</i>	<i>Qualification prescribed</i>	
			<i>From</i>	<i>To</i>		<i>Essential</i>	<i>Desirable</i>

11. (a) Total emoluments (excl. House Rent Allowance & Conveyance Allowance) in the present post Rs. . . p.m.
 (b) Whether provided (i) free house/subsidised house/H.R.A. Rs. _____p.m.
 (ii) free /subsidised transport/conveyance allowance Rs. _____p.m.

12. (i) Brief description of duties and responsibilities of the present post.
 (ii) Does your present work pertain to your specialisation ___ Yes/No/Partly
 If partly, approx, percentage _____
 (iii) Name and Address of your immediate _____
 supervisor in the present post _____

13. Details of project work done, if any

<i>From</i>	<i>Period To</i>	<i>Particulars of project</i>	<i>Particulars of sponsors</i>	<i>Objectives of the project</i>	<i>Output of the project</i>

14. Details of scientific/technical paper/reports published, if any

	<i>Details/subject of the paper/report</i>	<i>Journals in which Published</i>	<i>Year</i>
1.			
2.			
3.			
4.			

15. Details of conference attended, if any

	<i>Particulars of conference</i>	<i>Venue</i>	<i>Date</i>	<i>Details of paper presented or read, if any</i>
1.				
2.				
3.				
4.				

16. Patents commercialised, if any

	<i>Details of patents commercialised</i>	<i>Place where registered</i>	<i>Date</i>
1.			
2.			
3.			
4.			

17. (i) You may have done your Ph.D for one or more of the following reasons: (Please tick mark () the appropriate one(s))

- (a) because I was sponsored by an organisation
- (b) to meet mandatory requirement of the organisation I was employed in,
- (c) to get a particular job which I had in view,
- (d) to improve my career prospects,
- (e) for genuine desire for knowledge/skill in the subject/field.
- or
- (f) for the reason stated below in brief _____

(ii) Did your Ph.D work achieve/will achieve (c), (d), (a), (f)?
or none (tick mark appropriate one(s))

18. (i) Does the position held by you commensurate with your qualification and experience _____ Yes/No _____
(ii) If 'No' what position/pay scale you consider appropriate _____

(use space down below, if space provided for any of the above item is insufficient)

Item No. _____

Item No.

Item No.

Space for any other information, you may like to give

Subjectwise Break-up of completed Questionnaires received and considered

<i>Subject</i>	<i>Received</i>	<i>Considered</i>
1. Physics	335	323
2. Nuclear Physics	17	16
3. Chemistry	701	671
4. Mathematics	210	208
5. Statistics	44	42
6. Civil Engg.	78	77
7. Mechanical Engg.	70	67
8. Electrical Engg.	41	39
9. Electronics & Computer Science	32	30
10. Chemical Engg.	33	32
11. Chemical Technology and Pharmacology	17	17
12. Engg. (Others)	47	44
13. Agriculture	460	457
14. Medicine	24	23
15. Veterinary Science	56	56
16. Botany	360	352
17. Zoology	308	294
18. Bio-Chemistry	111	111
19. Biology (Others)	188	184
20. Geology	70	68
21. Geography	35	33
22. Geo-Physics	19	19
23. Anthropology	20	20
24. Miscellaneous/others	17	17
Total	3294	3200

ANNEXURE VIII

Subject Region Sex Sheet No. Total sheets	University		Questionnaire No.		University		Questionnaire No.		University		Questionnaire No.												
	(a) — below 30 years											(b) — 30-39 years											
Q. No.	E U N	R T RT O	I II III IV	E D N	/	Y N P	a- f	Y N	Y N	Pub. Y N	Pat. Y N	Q. No.	E U N	R T RT O	I II III IV	E D N	/	Y N P	a- f	Y N	Y N	Pub. Y N	Pat. Y N
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Legend: E/U/N: Employed, Unemployed, Not seeking employment
 R/T/RT/O: Research, Teaching, Research & Teaching, Other than Research/Teaching
 I/II/III/IV: Grades/Pay scales by Scholars
 Y/N/P: Yes, No, Partial

a-f: Reasons for which Ph.D. was obtained by the scholars
 a) because I was sponsored by an organisation
 b) to meet the mandatory requirement of the organisation I was employed in
 c) to get a particular job I had in view
 d) to improve my career prospects
 e) for genuine desire for knowledge/skill in the subject/field
 f) for the reasons stated below

Pub.: Publications
 Pat.: Patents

E U N	R T RT O	I II III IV	E D N	Y N P	a b c d e f	Y N	Y N	Y N	Y N	E U N	R T RT O	I II III IV	E D N	Y N P	a b c d e f	Y N	Y N	Y N	Y N	Y N	Y N	Y N
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Subject Region Sex Sheet No. Total sheets		University		Questionnaire No.		University		Questionnaire No.		University		Questionnaire No.														
(a) — 40-49 years													(b) — Above 50 years													All ages
Q. No.	E U N	R T RT O	I II III IV	E D N	L	Y N P	a- f	Y N	Y N	Pub. Y N	Pat. Y N	Q. No.	E U N	R T RT O	I II III IV	E D N	L	Y N P	a- f	Y N	Y N	Pub. Y N	Pat. Y N			
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49		
	E U N	R T RT O	I II III IV	E D N		Y N P	a b c d e f	Y N	Y N	Y N	Y N	E U N	R T RT O	I II III IV	E D N		Y N P	a b c d e f	Y N	Y N	Y N	Y N	Y N	2 E U N T T 3 R T RT O T 4 I II III IV I II III IV T 5 E D N T 6 7 Y N P T 8 a b c d e f T 9 Y N T 10 Y N T 11 Y N T 12 Y N T		

*Some vital parameters and dates**Parameters*

1. Number of Universities/deemed universities and Institutions of National Importance in India in 1984-85	150
2. Number of Ph.Ds awarded in S & T in 5 years 1980-81 to 1984-85	18,671
3. Number of Universities/Institutes selected for pretesting	2
4. Number of Ph.Ds in the above two	788
5. Number of filled in questionnaires received from the above two	304
6. Number of Universities/Institutes addressed initially to send the data regarding Ph.D. scholars	72
7. Number of Universities/Institutes subsequently addressed to send data regarding scholars	23
8. Number of Universities/Institutes visited for collection of data	39
9. Number of scholars who were addressed questionnaires	10,366
10. Number of scholars who responded	
a - till 30.11.88	3,200
b - till to date	3,294
11. Number of questionnaire received back undelivered	364
12. Number of scholars who did not respond	6,708
13. Number of responding scholars from overseas	36

Dates

1. Submission of project proposal	10-4-87
2. Acceptance of proposal	10-8-87
3. Receipt of payment	7-9-87
4. Commencement of the study	1-10-87
5. Despatch of first letter to Universities for supply of data	15-10-87
6. First visit to collect data for pretesting	25-10-87
7. Last visit to collect data for pretesting	10-11-87
8. First lot of questionnaires sent for pretesting	18-11-87
9. Last lot of questionnaires sent for pretesting	2-12-87
10. Last filled in questionnaire received from pretesting	8-12-87
11. First meeting of Advisory Committee	24-12-87
12. Questionnaire finalised	15-1-88
13. First lot of questionnaires despatched	25-1-88
14. Last lot of questionnaires despatched	23-10-88
15. Date upto which questionnaire should have been received	
targetted	30-6-88
actual	30-11-88

Employment Position of male and female Ph.D Scholars by subjects

Subject	Employment Position					
	Males		Females		Total	
	Number employed	% age to total	Number employed	% age to total	Number employed	% age to total
1	2	3	4	5	6	7
I. <i>Physical Science</i>	<u>1084</u>	<u>97.4</u>	<u>126</u>	<u>85.7</u>	<u>1210</u>	<u>96%</u>
1. Physics	293	99.3	26	92.9	319	98.8
2. Nuclear Physics	15	100%	1	100%	16	100%
3. Chemistry	559	95.9	71	80.7	630	93.9
4. Maths	178	98.3	25	92.6	203	97.6
5. Statistics	39	100%	3	100%	42	100%
II. <i>Technological Sciences</i>	<u>299</u>	<u>99.7</u>	<u>5</u>	<u>83.3</u>	<u>304</u>	<u>94.4</u>
6. Civil Engg.	77	100%	—	—	77	100%
7. Mech. Engg.	67	100%	—	—	67	100%
8. Elec. Engg.	38	100%	1	100%	39	100%
9. Electronics & Computer Sc.	28	100%	2	100%	30	100%
10. Chem. Engg.	31	100%	1	100%	32	100%
11. Chemical technology	15	100%	1	50%	16	94.1
12. Engg. (others)	43	97.7	—	—	43	97.7
III. <i>Agricultural & Veterinary Sciences</i>	<u>492</u>	<u>99.0</u>	<u>14</u>	<u>87.5</u>	<u>506</u>	<u>98.1</u>
13. Agriculture	438	99.3	14	87.5	452	98.9
14. Veterinary Sc.	54	96.4	—	—	54	96.4
IV. <i>Medicine</i>	<u>15</u>	<u>93.8</u>	<u>7</u>	<u>100%</u>	<u>22</u>	<u>95.7</u>
V. <i>Bio-Sciences</i>	<u>708</u>	<u>95.5</u>	<u>157</u>	<u>78.5</u>	<u>865</u>	<u>91.9</u>
15. Botany	260	95.9	58	71.6	318	90.3
16. Zoology	225	94.9	46	80.7	271	92.2
17. Bio Chemistry	67	90.5	31	83.8	98	88.3
18. Biology(Others)	156	98.1	22	88%	178	96.7
VI. <i>Geo-Sciences</i>	<u>111</u>	<u>98.2</u>	<u>5</u>	<u>71.4</u>	<u>116</u>	<u>96.7</u>
19. Geology	64	97%	1	50%	65	95.6
20. Geography	28	100%	4	80%	32	97%
21. Geophysics	19	100%	—	—	19	100%
VII. <i>Miscellaneous</i>	<u>23</u>	<u>100%</u>	<u>12</u>	<u>85.7</u>	<u>35</u>	<u>94.6</u>
22. Anthropology	12	100%	6	75%	18	90%
23. Other subjects	11	100%	6	100%	17	100%
Total (All subjects)	2732	97.5	326	82.1	3058	95.6

— Figures relating to totals in the subject are not shown in this table.

Activity-wise distribution of scholars under each subject group/subject

Subject-group/subject	Research	Teaching	Res. & Teaching	Others	TOTAL
1	2	3	4	5	6
I. Physical Sc.	376 (31.2)	553 (45.9)	191 (15.9)	84 (7)	1204
1. Physics	97 (30.4)	151 (47.3)	52 (16.3)	19 (6)	319 (26.5)
2. Nuc. Physics	4 (25)	9 (56.3)	2 (12.5)	1 (6.3)	16 (1.3)
3. Chemistry	244 (39)	248 (39.7)	76 (12.2)	57 (9.1)	625 (51.9)
4. Mathematics	22 (10.9)	132 (65.3)	41 (20.3)	7 (3.5)	202 (16.8)
5. Statistics	9 (21.4)	13 (31)	20 (47.6)	—	42 (3.5)
II. Technological Sc.	62 (20.7)	99 (33.1)	112 (37.5)	26 (8.7)	299
1. Civil	11 (14.7)	29 (38.7)	29 (38.7)	6 (8)	75 (25.1)
2. Mechanical	5 (7.5)	22 (32.8)	31 (46.3)	9 (13.4)	67 (22.4)
3. Electrical	6 (15.8)	16 (42.1)	13 (34.2)	3 (7.9)	38 (12.7)
4. Electronics & Computer Sc.	9 (31)	10 (34.5)	10 (34.5)	—	29 (9.7)
5. Chemical Engg.	6 (19.4)	7 (22.6)	13 (41.9)	5 (16.1)	31 (10.4)
6. Chemical Tech.	8 (50)	2 (12.5)	5 (31.3)	1 (6.3)	16 (5.4)
7. Engg. (Others)	17 (39.5)	13 (30.2)	11 (25.6)	2 (4.7)	43 (14.4)
III. Agricultural Medical & Veterinary Sc.	150 (29.8)	69 (13.9)	226 (44.8)	59 (11.7)	504
1. Agricultural Sc.	146 (32.4)	57 (12.7)	192 (42.7)	55 (12.2)	450 (89.3)
2. Veterinary Sc.	4 (7.4)	12 (22.2)	34 (63.0)	4 (7.4)	54 (10.7)
IV. Medical Sc.	—	17 (77.3)	—	5 (22.7)	22

V. Bio-Sciences	259 (30.2)	362 (42.2)	180 (21.0)	56 (6.5)	857
1. Botany	75 (23.9)	153 (48.7)	68 (21.7)	18 (5.7)	314 (36.6)
2. Zoology	65 (24)	131 (48.3)	56 (20.7)	19 (7)	271 (31.6)
3. Bio Chemistry	42 (44.7)	42 (44.7)	5 (5.3)	5 (5.3)	94 (11)
4. Biology (Others)	77 (43.3)	36 (20.2)	51 (28.7)	14 (7.9)	178 (20.8)
VI. <i>Geo Sciences</i>	33 (28.4)	46 (39.7)	22 (19)	15 (12.9)	116
1. Geology	18 (27.7)	24 (36.9)	9 (13.9)	14 (21.5)	65 (56)
2. Geography	4 (12.5)	18 (56.3)	9 (28.1)	1 (3.1)	32 (27.6)
3. Geo Physics	11 (57.9)	4 (21.2)	4 (21.2)	—	19 (16.4)
VII. <i>Misc.</i>	12 (35.3)	9 (26.5)	7 (20.6)	6 (17.6)	34
1. Anthropology	6 (35.3)	5 (29.4)	3 (17.6)	3 (17.6)	17 (50)
2. Others	6 (35.3)	4 (23.5)	4 (23.5)	3 (17.7)	17 (50)
TOTAL	892 (29.4)	1155 (38)	738 (24.3)	251 (8.3)	3036

Note: (i) Figures within brackets are percentages. These are w.r.t. totals in col.6

(ii) Percentages given in column 6 against subjects are w.r.t. the respective total of the subject-group.

*Activity-wise distribution of scholars by subject-groups
for male and female scholars separately*

MALES

<i>Subject-group</i>	<i>Research</i>	<i>Teaching</i>	<i>Res. & Teaching</i>	<i>Others</i>	<i>TOTAL</i>
1	2	3	4	5	6
1. Physical Sc.	342(43.5) (31.7)	483(48.8) (44.8)	178(25.3) (16.5)	75(32.5) (7.0)	1078(39.8) (89.5)
2. Technological Sc.	60(7.6) (20.4)	98(9.9) (33.3)	110(15.6) (37.3)	26(11.3) (8.8)	294(10.8) (98.3)
3. Agriculture & Vety Sc.	143(18.2) (29.2)	68(6.9) (13.9)	222(31.6) (45.3)	57(24.7) (11.6)	490(18.1) (97.2)
4. Medical Science	—	11(1.1) (73.3)	—	4(1.7) (26.7)	15(0.5) (68.2)
5. Bio-Sciences	203(25.8) (29)	281(28.4) (40.1)	167(23.7) (23.8)	50(21.6) (7.1)	701(25.9) (81.8)
6. Geo Sciences	31(3.9) (27.9)	43(4.4) (38.7)	22(3.1) (19.8)	15(6.5) (13.5)	111(4.1) (95.7)
7. Misc.	8(1.0) (36.4)	5(0.5) (22.7)	5(0.7) (22.7)	4(1.7) (18.2)	22(0.8) (64.7)
8. TOTAL	787 (29)	989 (36.5)	704 (26)	231 (8.5)	2711 (89.3)

FEMALES

1. Physical Sc.	34(32.4) (27)	70(42.2) (55.6)	13(38.2) (10.3)	9(45.0) (7.1)	126(38.8) (10.5)
2. Technological Sc.	2(1.9) (40)	1(60) (20)	2(5.9) (40)	—	5(1.5) (1.7)
3. Agriculture & Vety Sc.	7(6.7) (50.0)	1(0.6) (7.1)	4(11.8) (28.6)	2(10.0) (14.3)	14(4.3) (2.8)
4. Medical Science	—	6(3.6) (85.7)	—	1(5.0) (14.3)	7(2.2) (31.8)
5. Bio-Sciences	56(53.3) (35.9)	81(48.8) (51.9)	13(38.2) (8.3)	6(30.0) (3.9)	156(48.0) (18.2)
6. Geo-Sciences	2(1.9) (40)	3(1.8) (60)	—	—	5(1.5) (4.3)
7. Misc.	4(3.8) (33.3)	4(2.4) (33.3)	2(5.9) (16.7)	2(10.0) (16.7)	12(3.7) (35.3)
8. TOTAL	105 (32.3)	166 (51.1)	34 (10.5)	20 (6.2)	325 (10.7)

Note: Percentage given below the absolute figures are w.r.t. absolute figures in col.6.
Percentage to the right of absolute figures are w.r.t. to totals in the respective columns.

ANNEXURE XIII

Distribution of scholars by professions, length of service grades held and broad subject groups.

Group	No. of Years Taken	Research							Total	Teaching				
		-I	I	II	III	IV	V	-I		I	II	III	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1. Physical Sciences	0-5	25 (19.7)	57 (44.9)	34 (26.8)	6 (4.7)	1 (0.8)	4 (3.1)	127 (42.1)	17 (11.6)	112 (76.7)	17 (11.7)	— (0.0)	146 (48.3)	
	6-10	12 (12.4)	40 (41.2)	38 (39.2)	3 (3.0)	2 (2.1)	2 (2.1)	97 (38.5)	8 (6.2)	107 (82.9)	13 (10.1)	1 (0.8)	129 (51.2)	
	10+	5 (3.4)	29 (19.6)	57 (38.5)	41 (27.7)	15 (10.1)	1 (0.7)	148 (23.9)	11 (2.5)	252 (56.3)	166 (37.0)	19 (4.2)	448 (72.2)	
2. Technological Sciences	0-5	1 (7.7)	5 (38.5)	4 (30.8)	3 (23.0)	—	—	13 (41.9)	—	6 (50.0)	4 (33.3)	2 (16.7)	12 (38.7)	
	6-10	3 (15.8)	3 (15.8)	9 (47.4)	4 (21.0)	—	—	19 (33.9)	—	15 (48.4)	13 (41.9)	3 (9.7)	31 (55.4)	
	10+	2 (5.6)	5 (13.8)	8 (22.2)	15 (41.7)	6 (16.7)	—	36 (17.4)	1 (0.6)	12 (7.6)	87 (54.7)	59 (37.1)	159 (76.8)	
3. Agricultural & Vety Sciences	0-5	2 (3.5)	40 (70.2)	13 (22.8)	2 (3.5)	—	—	57 (62.6)	—	16 (59.3)	10 (37.0)	1 (3.7)	27 (29.7)	
	6-10	9 (17.3)	24 (46.2)	17 (32.7)	2 (3.8)	—	—	52 (46.0)	3 (7.1)	18 (42.9)	20 (47.6)	1 (2.4)	42 (37.2)	
	10+	4 (3.4)	22 (18.6)	81 (68.7)	11 (9.3)	—	—	118 (40.4)	—	36 (23.8)	89 (59.0)	26 (17.2)	151 (51.7)	
4. Medical Sciences	0-5	—	—	—	—	—	—	—	—	—	—	—	—	
	6-10	—	—	—	—	—	—	—	—	2 (33.3)	1 (16.7)	3 (50.0)	6 (85.7)	
	10+	—	—	—	—	—	—	—	—	2 (18.2)	4 (36.4)	5 (45.4)	11 (84.6)	

- Note: i) Figure in the brackets under grade are percentages. These have been worked out w.r.t. totals in the respective activity.
ii) Figures in the brackets in Total Column are also percentages. These are worked out with respect to total number of scholars in the subject having that number of years of service.
iii) The respective grades are
- | | |
|---------------------------------------|--------------------------|
| Research | Teaching |
| -I below Rs.2200-Rs.4000 | -I below Rs.2200-Rs.4000 |
| I Rs.2200-Rs.4000 | I Rs.2200-Rs.4000 |
| II Rs.3000-Rs.4500 | II Rs.3700-Rs.5700 |
| III Rs.3700-Rs.5000 & Rs.4100-Rs.5300 | III Rs.4500-Rs.7300 |
| IV Rs.4500-Rs.5700 | |
| V Rs.5700-Rs.7300 | |

ANNEXURE XIII contd.

Group	No. of Years Taken	Nature of work													
		Others						Total							
		-I	I	II	III	IV	V	Total	-I	I	II	III	IV	V	Total
15	16	17	18	19	20	21	22	23	24	25	26	27	28		
1. Physical Science	0-5	9 (31.0)	9 (31.0)	8 (27.6)	3 (10.4)	—	—	29 (9.6)	51 (16.9)	178 (58.9)	59 (19.6)	9 (3.0)	1 (0.3)	4 (1.3)	302 (100.0)
	6-10	8 (30.8)	5 (19.2)	12 (46.2)	1 (38.8)	—	—	26 (10.3)	28 (11.1)	152 (60.3)	63 (25.0)	5 (2.0)	2 (0.8)	2 (0.8)	252 (100.0)
	10+	5 (20.8)	7 (29.2)	6 (25.0)	6 (25.0)	—	—	24 (3.9)	21 (3.4)	288 (46.5)	229 (36.8)	66 (10.7)	15 (2.4)	1 (0.2)	620 (100.0)
2. Technological Sciences	0-5	2 (33.0)	3 (50.0)	1 (16.7)	—	—	—	6 (19.4)	3 (9.7)	14 (45.2)	9 (29.0)	5 (16.1)	—	—	31 (100.0)
	6-10	—	1 (16.7)	5 (83.3)	—	—	—	6 (10.7)	3 (5.4)	19 (33.9)	27 (48.2)	7 (12.5)	—	—	56 (100.0)
	10+	1 (8.3)	2 (16.7)	4 (33.3)	3 (25.0)	2 (16.7)	—	12 (5.8)	4 (1.9)	19 (9.2)	99 (47.8)	77 (37.2)	8 (3.9)	—	207 (100.0)
3. Agricultural & Vety Sciences	0-5	2 (28.6)	4 (57.1)	1 (14.3)	—	—	—	7 (7.7)	4 (4.4)	60 (65.9)	24 (26.4)	3 (3.3)	—	—	91 (100.0)
	6-10	2 (10.5)	6 (31.6)	11 (57.9)	—	—	—	19 (16.8)	14 (12.4)	48 (42.5)	48 (42.5)	3 (2.6)	—	—	113 (100.0)
	10+	—	4 (17.4)	13 (56.5)	6 (28.1)	—	—	23 (7.9)	4 (1.4)	62 (21.2)	183 (62.7)	43 (14.7)	—	—	292 (100.0)
4. Medical Science	0-5	—	—	1 (50.0)	1 (50.0)	—	—	2 (100.0)	—	—	1 (50.0)	1 (50.0)	—	—	2 (100.0)
	6-10	—	—	1 (100.0)	—	—	—	1 (14.3)	—	2 (28.6)	2 (28.6)	3 (42.8)	—	—	7 (100.0)
	10+	—	—	—	—	2 (100.0)	—	2 (15.4)	—	2 (15.4)	4 (30.8)	5 (38.4)	2 (15.4)	—	13 (100.0)

ANNEXURE XIII contd.

Group	No. of Years Taken	Research							Teaching						
		-I	I	II	III	IV	V	Total	-I	I	II	III	Total		
		2	3	4	5	6	7	8	9	10	11	12	13	14	
5. Bio Sciences	0-5	32 (34.1)	50 (53.2)	10 (10.6)	2 (2.1)	—	—	—	94 (42.3)	11 (10.2)	86 (79.6)	8 (7.4)	3 (2.8)	108 (48.7)	
	6-10	18 (20.5)	48 (34.5)	18 (20.5)	3 (3.4)	—	—	1 (1.1)	88 (38.6)	11 (8.7)	87 (69.1)	27 (21.4)	1 (0.8)	126 (55.3)	
	10+	11 (11.1)	31 (31.3)	45 (45.5)	8 (8.1)	4 (4.0)	—	—	99 (25.3)	15 (5.5)	161 (58.5)	83 (30.2)	16 (5.8)	275 (70.2)	
6. Geo.Sciences	0-5	2 (22.2)	3 (33.4)	2 (22.2)	2 (22.2)	—	—	—	9 (32.2)	1 (5.9)	14 (82.4)	2 (11.7)	—	17 (60.7)	
	6-10	—	4 (44.4)	5 (55.6)	—	—	—	—	9 (31.0)	—	11 (78.6)	3 (21.4)	—	14 (48.3)	
	10+	—	2 (13.3)	7 (46.6)	4 (26.7)	1 (6.7)	1 (6.7)	—	15 (25.9)	1 (2.8)	16 (44.4)	18 (50.0)	1 (2.8)	36 (62.1)	
7. Misc.	0-5	—	—	—	1 (100.0)	—	—	—	1 (33.3)	1 (50.0)	1 (50.0)	—	—	2 (66.7)	
	6-10	1 (20.0)	3 (60.0)	1 (20.0)	—	—	—	—	5 (62.5)	—	2 (100.0)	—	—	2 (25.0)	
	10+	4 (50.0)	1 (12.5)	1 (12.5)	1 (12.5)	1 (12.5)	—	—	8 (42.1)	—	2 (28.6)	3 (42.8)	2 (28.6)	7 (36.8)	
Total	0-5	62 (20.6)	155 (51.6)	63 (20.9)	16 (5.3)	1 (0.3)	4 (1.3)	301 (44.3)	30 (9.6)	235 (75.3)	41 (13.2)	6 (1.9)	312 (46.0)		
	6-10	43 (15.9)	122 (45.2)	88 (32.6)	12 (4.5)	2 (0.7)	3 (1.1)	270 (39.0)	22 (6.3)	242 (69.1)	77 (22.0)	9 (2.6)	350 (50.5)		
	10+	26 (6.1)	90 (21.2)	199 (46.9)	80 (18.9)	27 (6.4)	2 (0.5)	424 (26.5)	28 (2.6)	481 (44.3)	450 (41.4)	128 (11.7)	1087 (67.9)		

Group	No. of Years Taken	Nature of work													
		Others						Total							
		-I	I	II	III	IV	V	Total	-I	I	II	III	IV	V	Total
15	16	17	18	19	20	21	22	23	24	25	26	27	28		
5. Bio.Sc.	0-5	4	11	4	1	—	—	20	47	147	22	6	—	—	222
		(20.0)	(55.0)	(20.0)	(5.0)	—	—	(9.0)	(21.2)	(66.2)	(9.9)	(2.7)	—	—	(100.0)
	6-10	3	6	4	1	—	—	14	32	141	49	5	—	1	228
	(21.4)	(42.9)	(28.6)	(7.1)	—	—	(6.1)	(14.0)	(61.8)	(21.5)	(2.2)	—	(0.5)	(100.0)	
	10+	6	4	7	1	—	—	18	32	196	135	25	4	—	392
	(33.3)	(22.2)	(38.9)	(5.6)	—	—	(4.6)	(8.2)	(50.0)	(34.4)	(6.4)	(1.0)	—	(100.0)	
6. Geo.Sc.	0-5	—	2	—	—	—	—	2	3	19	4	2	—	—	28
		(0.0)	(100.0)	(0.0)	(0.0)	(0.0)	—	(7.1)	(10.7)	(67.9)	(14.3)	(7.1)	(0.0)	(0.0)	(100.0)
	6-10	—	3	1	2	—	—	6	—	18	9	2	—	—	29
	(0.0)	(50.0)	(16.7)	(33.3)	(0.0)	—	(20.7)	(0.0)	(62.1)	(31.0)	(6.9)	(0.0)	(0.0)	(100.0)	
	10+	—	2	—	3	2	—	7	1	20	25	8	3	1	58
	(0.0)	(28.6)	(0.0)	(42.8)	(28.6)	—	(12.0)	(1.7)	(34.5)	(43.1)	(13.8)	(5.2)	(1.7)	(100.0)	
7. Misc.	0-5	—	—	—	—	—	—	—	1	1	—	1	—	—	3
		(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	—	(0.0)	(33.3)	(33.3)	(0.0)	(33.4)	(0.0)	(0.0)	(100.0)
	6-10	—	—	1	—	—	—	1	1	5	2	—	—	—	8
	(0.0)	(0.0)	(100.0)	(0.0)	(0.0)	—	(12.5)	(12.5)	(62.5)	(25.0)	(0.0)	(0.0)	(0.0)	(100.0)	
	10+	—	3	1	—	—	—	4	4	6	5	3	1	—	19
	(0.0)	(75.0)	(25.0)	(0.0)	(0.0)	—	(21.1)	(21.1)	(31.6)	(26.3)	(15.8)	(5.2)	(0.0)	(100.0)	
Total	0-5	17	29	15	5	—	—	66	109	419	119	27	1	4	679
		(25.8)	(43.9)	(22.7)	(7.6)	—	—	(9.7)	(16.1)	(61.7)	(17.5)	(4.0)	(0.1)	(0.6)	(100.0)
	6-10	13	21	35	4	—	—	73	78	385	200	25	2	3	693
	(17.8)	(28.8)	(47.9)	(5.5)	(0.0)	—	(10.5)	(11.3)	(55.6)	(28.8)	(3.6)	(0.3)	(0.4)	(100.0)	
	10+	12	22	31	19	6	—	90	66	593	680	227	33	2	1601
	(13.3)	(24.5)	(34.4)	(21.1)	(6.7)	—	(5.6)	(4.1)	(37.0)	(42.5)	(14.2)	(2.1)	(0.1)	(100.0)	

Distribution of Ph.D scholars employed on teaching by age groups and pay grades under various subject groups/subjects

Subjects	Ph.Ds by subjects age-groups and grades									
	Upto 30 years					30-39 years				
	-I	I	II	III	T	-I	I	II	III	T
1	2	3	4	5	6	7	8	9	10	11
I. <i>Phy. Sc.</i>	2	25	2	—	29	25	277	59	1	362
	(6.9)	(86.2)	(6.9)	—	(4.0)	(6.9)	(76.5)	(16.3)	(0.3)	(49.4)
1. Physics	—	6	—	—	6	4	57	14	1	76
	—	(100)	—	—	(3.0)	(5.3)	(75.0)	(18.4)	(1.3)	(38.4)
2. Nuc. Phy.	—	—	—	—	—	—	5	—	—	5
	—	—	—	—	—	—	(100)	—	—	(45.5)
3. Chemistry	1	16	1	—	18	15	136	25	—	176
	(5.6)	(88.9)	(5.6)	—	(5.6)	(8.5)	(77.3)	(14.2)	—	(55)
4. Maths	1	2	1	—	4	6	69	11	—	86
	(25)	(50)	(25)	—	(2.3)	(7.0)	(80.2)	(12.8)	—	(50)
5. Statistics	—	1	—	—	1	—	10	9	—	19
	—	(100)	—	—	(3.1)	—	(52.6)	(45.4)	—	(59.4)
II. <i>Technological Sciences</i>	—	—	—	—	—	—	23	27	4	54
	—	—	—	—	—	—	(42.6)	(50)	(7.4)	(26.4)
1. Civil	—	—	—	—	—	—	3	3	—	6
	—	—	—	—	—	—	(50)	(50)	—	(11.1)
2. Mech.	—	—	—	—	—	—	6	6	—	12
	—	—	—	—	—	—	(50)	(50)	—	(24)
3. Electrical	—	—	—	—	—	—	1	1	1	3
	—	—	—	—	—	—	(33.3)	(33.3)	(33.3)	(10.3)
4. Electronics & Computer Science	—	—	—	—	—	—	3	8	2	13
	—	—	—	—	—	—	(23.1)	(61.5)	(15.4)	(68.4)
5. Chem. Engg.	—	—	—	—	—	—	6	5	—	11
	—	—	—	—	—	—	(55.5)	(45.5)	—	(57.9)
6. Chem. Tech.	—	—	—	—	—	—	1	2	—	3
	—	—	—	—	—	—	(33.3)	(66.7)	—	(42.9)
7. Engg. (others)	—	—	—	—	—	—	3	21	1	6
	—	—	—	—	—	—	(50)	(33.3)	(16.7)	(25)

ANNEXURE XIV contd.

Subjects	Ph.Ds by subjects age-groups and grades									
	40-49 years					Above 50 years				
	-I	I	II	III	T	-I	I	II	III	T
	12	13	14	15	16	17	18	19	20	21
<i>I. Phy. Sc.</i>	9	153	116	16	294	—	20	24	4	48
	(3.1)	(52)	(39.5)	(5.4)	(40.1)	—	(41.7)	(50)	(8.3)	(6.5)
1. Physics	1	59	41	3	104	—	7	5	—	12
	(1)	(56.7)	(39.4)	(2.9)	(52.5)	—	(58.3)	(41.7)	—	(6.1)
2. Nuc. Phy.	—	3	2	—	5	—	—	1	—	1
	—	(60)	(40)	—	(45.5)	—	—	(100)	—	(9.1)
3. Chemistry	3	64	40	7	114	—	3	7	2	12
	(2.6)	(56.1)	(35.1)	(6.1)	(35.6)	—	(25)	(58.3)	(16.7)	(3.8)
4. Maths	5	24	26	6	61	—	9	10	2	21
	(8.2)	(39.3)	(42.6)	(9.8)	(35.5)	—	(42.9)	(47.6)	(9.5)	(12.2)
5. Statistics	—	3	7	—	10	—	1	1	—	2
	—	(30)	(70)	—	(31.3)	—	(50)	(50)	—	(6.2)
<i>II. Technological Sciences</i>	1	10	67	44	122	—	1	11	14	26
	(0.8)	(8.2)	(54.9)	(36.1)	(60.4)	—	(3.8)	(42.3)	(53.8)	(12.9)
1. Civil	—	4	23	9	36	—	1	4	7	12
	—	(11.1)	(63.9)	(25)	(66.7)	—	(8.3)	(33.3)	(58.3)	(22.2)
2. Mech.	—	1	17	15	33	—	—	2	3	5
	—	(3)	(51.5)	(45.5)	(66)	—	—	(40)	(60)	(12)
3. Electrical	—	2	10	12	24	—	—	2	—	2
	—	(8.3)	(41.7)	(50)	(82.8)	—	—	(100)	—	(6.9)
4. Electronics & Computer Science	—	—	3	2	5	—	—	—	1	1
	—	—	(60)	(40)	(26.3)	—	—	—	(100)	(5.3)
5. Chem. Engg.	—	1	3	3	7	—	—	—	1	1
	—	(14.3)	(42.9)	(42.9)	(36.8)	—	—	—	(100)	(5.3)
6. Chem. Tech.	1	—	1	1	3	—	—	1	—	1
	(33.3)	—	(33.3)	(33.3)	(42.9)	—	—	(100)	—	(14.3)
7. Engg. (others)	—	2	10	2	14	—	—	2	2	4
	—	(14.3)	(71.4)	(14.3)	(58.3)	—	—	(50)	(50)	(16.7)

ANNEXURE XIV contd.

Subject	Ph.Ds by subjects, age-groups and grades				
	-I	I	II	III	T
	22	23	24	25	26
<i>I. Phy. Sc.</i>	36 (4.9)	475 (64.8)	201 (27.4)	21 (2.9)	733
1. Physics	5 (2.5)	129 (65.2)	60 (30.3)	4 (2.0)	198
2. Nuc. Phy.	—	8 (72.7)	3 (27.3)	—	11
3. Chemistry	19 (5.9)	219 (68.4)	73 (22.8)	9 (2.8)	320
4. Maths	12 (7.0)	104 (60.4)	48 (27.9)	8 (4.7)	172
5. Statistics	—	15 (46.9)	17 (53.1)	—	32
<i>II. Technological Sciences</i>	1 (0.5)	34 (16.8)	105 (52.0)	62 (30.7)	202
1. Civil	—	8 (14.8)	30 (55.6)	16 (29.6)	54
2. Mech.	—	7 (14.0)	25 (50.0)	18 (36.0)	50
3. Electrical	—	3 (10.3)	13 (44.8)	13 (44.8)	29
4. Electronics & Computer Science	—	3 (15.8)	11 (57.9)	5 (26.3)	19
5. Chem. Engg.	—	7 (36.8)	8 (42.1)	4 (21.1)	19
6. Chem. Tech.	1 (14.3)	1 (14.3)	4 (57.1)	1 (14.3)	7
7. Engg. (others)	—	5 (20.8)	14 (58.3)	5 (20.8)	24

ANNEXURE XIV contd.

1	2	3	4	5	6	7	8	9	10	11
III. <i>Agricultural & veterinary sciences</i>	—	2 (100)	—	—	2 (0.9)	3 (3.4)	47 (53.4)	37 (42.1)	1 (1.1)	88 (39.6)
1. Agrl. Sc.	—	2 (100)	—	—	2 (1.1)	3 (3.8)	45 (57.7)	29 (37.2)	1 (1.3)	78 (43.1)
2. Vet. Sc.	—	—	—	—	—	—	2 (20)	8 (80)	—	10 (24.4)
IV. Med. Sc.	—	—	—	—	—	—	1 (33.3)	1 (33.3)	1 (33.3)	3 (17.6)
V. <i>Bio-Sc.</i> 16	—	—	22	22	230	55	1	308	—	—
1. Botany	(27.3) 1 (7.7)	(72.7) 12 (92.3)	—	—	(4.3) 13 (6.1)	(7.1) 13 (10.4)	(74.7) 93 (74.4)	(17.9) 19 (15.2)	(0.3)	(59.8) 125 (58.7)
2. Zoology	3 (75)	1 (25)	—	—	4 (2.2)	7 (6.5)	87 (80.6)	13 (12)	1 (0.9)	108 (59.3)
3. Bio-Chem.	1 (33.3)	2 (66.7)	—	—	3 (7.1)	1 (3.3)	14 (46.7)	15 (50)	—	30 (71.4)
4. Biology	1 (50)	1 (50)	—	—	2 (2.6)	1 (2.2)	36 (80)	8 (17.8)	—	45 (57.7)
VI. <i>Geo. Sc.</i> —	2	—	—	2	1	27	8	1	37	—
1. Geology	—	(100) 2	—	—	(3) 2	(2.7) —	(73) 9	(21.6) 4	(2.7)	(55.2) 13
2. Geography	—	(100)	—	—	(6.3)	—	(69.2) 13	(30.8) 2	—	(40.6) 17
3. Geo-Phy.	—	—	—	—	—	—	(76.5) 5	(11.8) 2	(5.9)	(63) 7
VII. <i>Misc.</i> — —	—	—	—	1	5	—	—	6	—	—
1. Anthropology	—	—	—	—	—	(16.7)	(83.3) 5	—	—	(50) 5
2. Others	—	—	—	—	—	1 (100)	(100)	—	—	(100) 1 (20)
<i>Total</i>	8 (14.6)	45 (81.9)	2 (3.6)	—	55 (3.1)	52 (6.1)	610 (71.1)	187 (21.8)	9 (1)	858 (48.5)

ANNEXURE XIV contd.

	12	13	14	15	16	17	18	19	20	21
III. <i>Agricultural & veterinary sciences</i>	—	21 (20.3)	67 (65.1)	15 (14.6)	103 (46.4)	—	1 (3.4)	14 (48.3)	14 (48.3)	29 (13.1)
1. Agrl. Sc.	—	19 (23.8)	47 (58.8)	14 (17.5)	80 (44.2)	—	1 (4.8)	10 (47.6)	10 (47.6)	21 (11.6)
2. Vet. Sc.	—	2 (8.7)	20 (87)	1 (4.3)	23 (56.1)	—	—	4 (50)	4 (50)	8 (19.5)
IV. Med. Sc.	—	2 (28.6)	3 (42.9)	2 (28.6)	7 (41.2)	—	1 (14.3)	1 (14.3)	5 (71.4)	7 (41.2)
V. <i>Bio-Sc.</i> 89	51 (3.1)	14 (56)	159 (32.1)	— (8.1)	8 (30.9)	14	4 (30.8)	26 (53.8)	— (15.4)	— (5.1)
1. Botany	1 (1.5)	43 (64.2)	19 (28.3)	4 (6)	67 (31.5)	—	3 (37.5)	5 (62.5)	—	8 (3.8)
2. Zoology	4 (6.6)	37 (60.6)	17 (27.9)	3 (4.9)	61 (33.5)	—	3 (33.3)	5 (55.6)	1 (11.1)	9 (4.9)
3. Bio-Chem.	—	4 (44.4)	3 (33.3)	2 (22.2)	9 (21.4)	—	—	—	—	—
4. Biology	—	5 (22.7)	12 (54.5)	5 (22.7)	22 (28.2)	—	2 (22.2)	4 (44.4)	3 (33.3)	9 (11.5)
VI. <i>Geo. Sc.</i> 1	9 (4.5)	12 (40.9)	— (54.5)	22 (32.8)	— (15)	3	3 (50)	— (50)	6	— (9)
1. Geology	—	6 (40)	9 (60)	—	15 (46.9)	—	1 (50)	1 (50)	—	2 (6.2)
2. Geography	1 (16.7)	2 (33.3)	3 (50)	—	6 (22.2)	—	2 (50)	2 (50)	—	4 (14.8)
3. Geo-Phy.	—	1 (100)	—	—	1 (12.5)	—	—	—	—	—
VII. <i>Misc.</i> — —	2	1	3 (66.7)	— (33.3)	1 (25)	1	1 (33.3)	3 (33.3)	— (33.3)	— (25)
1. Anthropology	—	—	1 (100)	—	1 (14.3)	—	—	1 (100)	—	1 (14.3)
2. Others	—	—	1 (50)	1 (50)	2 (40)	—	1 (50)	—	1 (50)	2 (40)
Total	16 (2.2)	284 (40)	318 (44.8)	92 (13)	710 (40.2)	—	35 (24.1)	68 (46.9)	42 (29)	145 (8.2)

ANNEXURE XIV contd.

	22	23	24	25	26
III. <i>Agricultural & veterinary sciences</i>	3 (1.3)	71 (32.0)	118 (53.2)	30 (13.5)	222
1. Agrl. Sc.	3 (1.7)	67 (37.0)	86 (47.5)	25 (13.8)	181
2. Vet. Sc.	—	4 (9.8)	32 (78.0)	5 (12.2)	41
IV. Med. Sc.	—	4 (23.5)	5 (29.4)	8 (47.1)	17
V. <i>Bio-Sc.33</i>	343 (6.4)	120 (66.6)	19 (23.3)	515 (3.7)	
1. Botany	15 (7.0)	151 (70.0)	43 (20.2)	4 (1.9)	213
2. Zoology	14 (7.7)	128 (70.3)	35 (19.2)	5 (2.7)	182
3. Bio-Chem.	2 (4.8)	20 (47.6)	18 (42.8)	2 (4.8)	42
4. Bio-Chem. 4. Biology	2 (2.6)	44 (56.4)	24 (30.8)	8 (10.2)	78
VI. <i>Geo. Sc. 2</i>	41 (3.0)	23 (61.2)	1 (34.3)	67 (1.5)	
1. Geology	—	18 (56.2)	14 (43.8)	—	32
2. Geography	2 (7.4)	17 (63.0)	7 (25.9)	21 (3.7)	27
3. Geo-Phy.	—	6 (75.0)	2 (25.0)	—	8
VII. <i>Misc.1 6</i>	3 (8.3)	2 (50.0)	12 (25.0)	(16.7)	
1. Anthropology	—	5 (71.4)	2 (28.6)	—	7
2. Others	1 (20.0)	1 (20.0)	1 (20.0)	2 (40.0)	5
Total	76 (4.3)	974 (55.1)	575 (32.5)	143 (8.1)	1768

1. Figures within brackets are percentages

2. Percentages of Ph.Ds holding different grades are with respect to total Ph.Ds in the age groups.

3. Percentage of total Ph.Ds in an age groups has been worked out with respect to total Ph.Ds in the subject.

*Distribution of Ph.D scholars employed in research work by
age groups and pay grades under various subject group/subjects.*

Subject group/ Subjects	Up to 30 years					30-39 years						
	-I	I	II	III	Total	-I	I	II	III	IV	V	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
I. <i>Phy. Sc.</i>	5	11	1	—	17	36	106	95	20	5	5	267
	(29.4)	(64.7)	(5.9)		(4.51)	(13.5)	(39.7)	(35.6)	(7.5)	(1.9)	(1.9)	(70.82)
1. Physics	1	3	—	—	4	6	24	28	9	2	—	69
	(25.0)	(75.0)			(4.0)	(8.7)	(34.8)	(40.6)	(13.0)	(2.9)		(68.3)
2. Nuclear Physics	—	—	—	—	—	—	1	—	2	—	—	3
							(33.3)		(66.7)			(75.0)
3. Chemistry	4	8	1	—	13	29	72	56	7	3	4	171
	(30.8)	(61.5)	(7.7)		(5.5)	(17.0)	(42.1)	(32.7)	(4.1)	(1.8)	(2.3)	(71.8)
4. Mathematics	—	—	—	—	—	1	8	7	2	—	1	19
						(5.3)	(42.1)	(36.8)	(10.5)		(5.3)	(79.2)
5. Statistics	—	—	—	—	—	—	1	4	—	—	—	5
												(50.0)
II. Technological sciences	—	—	—	—	—	6	10	14	13	—	—	43
						(14.0)	(23.3)	(32.6)	(30.2)			(63.2)
1. Civil	—	—	—	—	—	—	3	3	3	—	—	9
							(33.3)	(33.3)	(33.3)			(60.0)
2. Mechanical	—	—	—	—	—	1	1	—	1	—	—	3
						(33.3)	(33.3)	—	(33.3)			(37.5)
3. Electrical	—	—	—	—	—	—	—	2	1	—	—	3
								(66.7)	(33.3)			(60.0)
4. Electronics & Computer science	—	—	—	—	—	—	2	1	3	—	—	6
							(33.3)	(16.7)	(50.0)			(66.7)
5. Chemical	—	—	—	—	—	1	1	3	—	—	—	5
						(20.0)	(20.0)	(60.0)				(71.4)
6. Chemical Technology	—	—	—	—	—	4	2	1	1	—	—	8
						(50.0)	(25.0)	(12.5)	(12.5)			(100.0)
7. Engg.(others)	—	—	—	—	—	—	1	4	4	—	—	9
							(11.1)	(44.4)	(44.4)			(56.3)

ANNEXURE XV contd

Subject group/ Subjects	40-49 years							Above 50 years					
	-I	I	II	III	IV	V	Total	-I	I	II	III	IV	Total
	14	15	16	17	18	19	20	21	22	23	24	25	26
I. Phy.Sc.	1	12	25	21	10	3	72	-	1	6	11	3	21
	(1.4)	(16.7)	(34.7)	(29.2)	(13.9)	(4.2)	(19.10)		(4.8)	(28.6)	(52.4)	(14.3)	(5.57)
1. Physics	-	4	4	11	4	-	23	-	-	2	1	2	5
		(17.4)	(17.4)	(47.8)	(17.4)		(22.8)			(40.0)	(20.0)	(40.0)	(5.0)
2. Nuclear Physics	-	-	-	-	-	-	-	-	-	-	1	-	1
											(100)		(25.0)
3. Chemistry	1	8	16	9	6	3	43	-	1	3	6	1	11
	(2.3)	(18.6)	(37.2)	(20.9)	(14.0)	(7.0)	(18.1)		(9.1)	(27.3)	(54.5)	(9.1)	(4.6)
4. Mathematics	-	-	3	1	-	-	4	-	-	1	-	-	1
			(75.0)	(25.0)			(16.7)			(100)			(4.2)
5. Statistics	-	-	2	-	-	-	2	-	-	-	3	-	3
II. Technological sciences	-	2	6	8	4	-	20	-	1	-	2	2	5
		(10.0)	(30.0)	(40.0)	(20.0)		(29.4)		(20.0)		(40.0)	(40.0)	(7.4)
1. Civil	-	1	2	3	-	-	6	-	-	-	-	-	-
		(16.7)	(33.3)	(50.0)			(40.0)						
2. Mechanical	-	-	2	1	-	-	3	-	-	-	1	1	2
			(66.7)	(33.3)			(37.5)				(50.0)	(50.0)	(25.0)
3. Electrical	-	1	-	-	-	-	1	-	1	-	-	-	1
		(100.0)					(20.0)		(100.0)				(20.0)
4. Electronics & Computer science	-	-	-	2	1	-	3	-	-	-	-	-	-
				(66.7)	(33.3)		(33.3)						
5. Chemical	-	-	1	1	-	-	2	-	-	-	-	-	-
				(50.0)	(50.0)		(28.6)						
6. Chemical Technology	-	-	-	-	-	-	-	-	-	-	-	-	-
7. Engg. (others)	-	-	1	1	3	-	5	-	-	-	1	1	2
			(20.0)	(20.0)	(60.0)		(31.2)				(50.0)	(50.0)	(12.5)

ANNEXURE XV contd

	<i>All Ages</i>						
	<i>-I</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>	<i>V</i>	<i>Total</i>
	27	28	29	30	31	32	33
I. Phy. Sc.	42 (11.1)	128 (34.0)	129 (34.2)	52 (13.8)	18 (4.8)	8 (2.1)	377
1. Physics	7 (6.9)	31 (30.7)	34 (33.7)	21 (20.8)	8 (7.8)	—	101
2. Nuclear physics	— (25.0)	1 (75.0)	—	3	—	—	4
3. Chemistry	34 (14.3)	87 (36.6)	78 (32.8)	22 (9.2)	10 (4.2)	7 (2.9)	238
4. Mathematics	1 (4.2)	8 (33.3)	11 (45.8)	3 (12.5)	—	1 (4.2)	24
5. Statistics	—	1	6	3	—	—	10
II. Technological sciences	6 (8.8)	13 (19.1)	20 (29.4)	23 (33.8)	6 (8.8)	—	68
1. Civil	—	4 (26.7)	5 (33.3)	6 (40.0)	—	—	15
2. Mechanical	1 (12.5)	1 (12.5)	2 (25.0)	3 (37.5)	1 (12.5)	—	8
3. Electrical	—	2 (40.0)	2 (40.0)	1 (20.0)	—	—	5
4. Electronics & computer sc.	—	2 (22.2)	1 (11.1)	5 (55.6)	1 (11.1)	—	9
5. Chemical	1 (14.3)	1 (14.3)	4 (57.1)	1 (14.3)	—	—	7
6. Chemical Technology	4 (50.0)	2 (25.0)	1 (12.5)	1 (12.5)	—	—	8
7. Engg. (others)	—	1 (6.25)	5 (31.25)	6 (37.5)	4 (25.0)	—	16

ANNEXURE XV contd.

1	2	3	4	5	6	7	8	9	10	11	12	13
III. Agriculture & Vety. Sc.	1	8	—	—	9	14	64	43	4	—	—	125
	(11.1)	(88.9)			(4.0)	(11.2)	(51.2)	(34.4)	(3.2)			(55.1)
1. Agriculture	1	8	—	—	9	13	63	43	4	—	—	123
	(11.1)	(88.9)			(4.1)	(10.6)	(51.2)	(35.0)	(3.2)			(56.4)
2. Veterinary Sc.	—	—	—	—	—	1	1	—	—	—	—	2
						(50)	(50)					(22.2)
VI. Medical Sc.	—	—	—	—	—	—	—	—	—	—	—	—
V Bio. Sc	6	10	4	—	20	50	93	34	6	—	1	184
	(30.0)	(50.0)	(20.0)		(7.0)	(27.2)	(50.5)	(18.5)	(3.3)		(0.5)	(64.6)
1. Botany	3	7	2	—	12	20	30	5	2	—	—	57
	(25.0)	(58.3)	(16.7)		(14.3)	(35.1)	(52.6)	(8.8)	(3.5)			(67.9)
2. Zoology	3	1	1	—	5	21	23	3	2	—	—	49
	(60.0)	(20.0)	(20.0)		(7.1)	(42.9)	(46.9)	(6.1)	(4.1)			(70.0)
3. Biochemistry	—	—	1	—	1	2	16	11	2	—	—	31
			(100.0)		(2.1)	(6.5)	(51.6)	(35.5)	(6.4)			(66.0)
4. Biology (others)	—	2	—	—	2	7	24	15	—	—	1	47
		(100.0)			(2.4)	(14.9)	(51.1)	(31.9)			(2.1)	(56.0)
VI. Geo Sc.	1	1	—	—	2	2	6	11	2	—	—	21
	(50.0)	(50.0)			(5.9)	(9.5)	(28.6)	(52.4)	(9.5)			(61.8)
1. Geology	—	—	—	—	—	1	4	8	1	—	—	14
						(7.1)	(28.6)	(57.1)	(7.1)			(73.7)
2. Geography	—	1	—	—	1	1	—	—	1	—	—	2
		(100.0)			(25.0)	(50.0)			(50.0)			(50.0)
3. Geo-physics	1	—	—	—	1	—	2	3	—	—	—	5
	(100.0)				(9.1)		(40.0)	(60.0)				(45.5)
VII. Miscellaneous	—	—	—	—	—	3	4	2	1	—	—	10
						(30.0)	(40.0)	(20.0)	(10.0)			(66.7)
1. Anthropology	—	—	—	—	—	2	1	1	—	—	—	4
						(50.0)	(25.0)	(25.0)				(57.1)
2. Others	—	—	—	—	—	1	3	1	1	—	—	6
						(16.7)	(50.0)	(16.7)	(16.7)			(75.0)
All subjects	13	30	5	—	48	111	283	199	46	5	6	650
	(27.1)	(62.5)	(10.4)		(4.8)	(17.1)	(43.5)	(30.6)	(7.1)	(0.8)	(0.9)	(64.6)

ANNEXURE XV contd

	14	15	16	17	18	19	20	21	22	23	24	25	26
III. Agricultural & Vety. Sc.	-	12 (14.6)	60 (73.2)	10 (12.2)	-	-	82 (36.1)	-	2 (18.2)	6 (72.7)	1 (9.1)	-	11 (4.8)
1. Agriculture	-	10 (12.8)	58 (74.4)	10 (12.8)	-	-	78 (35.8)	-	2 (25.0)	5 (62.5)	1 (12.5)	-	8 (3.7)
2. Vety Sc.	-	2 (50.0)	2 (50.0)	-	-	-	4 (44.4)	-	-	3 (100.0)	-	-	3 (33.3)
IV. Medical Sc.	-	-	-	-	-	-	-	-	-	-	-	-	-
V. Bio Sc.	5 (8.5)	16 (27.1)	31 (52.5)	5 (8.5)	2 (3.4)	-	59 (20.7)	1 (4.5)	5 (22.7)	9 (40.9)	4 (18.2)	3 (13.6)	22 (7.7)
1. Botany	-	4 (57.1)	2 (28.6)	-	1 (14.3)	-	7 (8.3)	1 (12.5)	1 (12.5)	4 (50.0)	-	2 (25.0)	8 (9.5)
2. Zoology	1 (9.1)	1 (9.1)	6 (54.5)	2 (18.2)	1 (9.1)	-	11 (15.7)	-	3 (60.0)	1 (20.0)	1 (20.0)	-	5 (7.1)
3. Biochemistry	-	5 (38.5)	6 (46.2)	2 (15.4)	-	-	13 (27.7)	-	-	1 (50.0)	-	1 (50.0)	2 (4.2)
4. Biology (others)	4 (14.3)	6 (21.4)	17 (60.7)	1 (3.6)	-	-	28 (33.3)	-	1 (14.3)	3 (42.9)	3 (42.9)	-	7 (8.3)
VI. Geo Sc.	-	1 (11.1)	4 (44.4)	2 (22.2)	1 (11.1)	1 (11.1)	9 (26.5)	-	-	-	2 (100.0)	-	2 (5.9)
1. Geology	-	-	2 (66.7)	-	-	1 (33.3)	3 (15.8)	-	-	-	2 (100.0)	-	2 (10.5)
2. Geography	-	1	-	-	-	-	1 (25.0)	-	-	-	-	-	-
3. Geo-Physics	-	-	2 (40.0)	2 (40.0)	1 (20.0)	-	5 (45.5)	-	-	-	-	-	-
VII. Miscellaneous	2 (100.0)	-	-	-	-	-	2 (13.3)	-	-	-	2 (66.7)	1 (33.3)	3 (20.0)
1. Anthropology	2 (100.0)	-	-	-	-	-	2 (28.6)	-	-	-	1 (100.0)	-	1 (14.3)
2. Others	-	-	-	-	-	-	-	-	-	-	1 (50.0)	1 (50.0)	2 (25.0)
All Subjects	8 (3.3)	43 (17.6)	126 (51.6)	46 (18.9)	17 (7.0)	4 (1.6)	224 (24.3)	1 (1.6)	9 (14.1)	23 (35.9)	22 (34.4)	9 (14.1)	64 (6.4)

Note: i) Figures within brackets are percentages
ii) Percentages of sub-age group totals are calculated to the total of All Ages.
iii) Percentages within each age-group are calculated w.r.t. its sub-total.

ANNEXURE XV contd

	27	28	29	30	31	32	33
III. Agricultural & Vety. Sc.	15 (6.6)	86 (37.9)	111 (48.9)	15 (6.6)	—	—	227
1. Agriculture	14 (6.4)	83 (38.1)	106 (48.6)	15 (6.9)	—	—	218
2. Vety. Sc.	1 (11.1)	3 (33.3)	5 (55.6)	—	—	—	9
IV. Medical Sc.	—	—	—	—	—	—	—
V. Bio. Sc.	62 (21.7)	124 (43.5)	78 (27.4)	15 (5.3)	5 (1.8)	1 (0.3)	285
1. Botany	24 (28.6)	42 (50.0)	13 (15.5)	2 (2.4)	3 (3.5)	—	84
2. Zoology	25 (35.7)	28 (40.0)	11 (15.7)	5 (7.1)	1 (1.4)	—	70
3. Biochemistry	2 (4.3)	21 (44.7)	19 (40.4)	4 (8.5)	1 (2.1)	—	47
4. Biology (others)	11 (13.1)	33 (39.3)	35 (41.7)	4 (4.8)	—	1 (1.2)	84
VI. Geo. Sc.	3 (8.8)	8 (23.5)	15 (44.1)	6 (17.7)	1 (2.9)	1 (2.9)	34
1. Geology	1 (5.3)	4 (21.1)	10 (52.6)	3 (15.8)	—	1 (5.3)	19
2. Geography	1 (25.0)	2 (50.0)	—	1 (25.0)	—	—	4
3. Geo-Physics	1 (9.1)	2 (18.2)	5 (45.4)	2 (18.2)	1 (9.1)	—	11
VII. Miscellaneous	5 (33.3)	4 (26.7)	2 (13.3)	3 (20.0)	1 (6.7)	—	15
1. Anthropology	4 (57.1)	1 (14.3)	1 (14.3)	1 (14.3)	—	—	7
2. Others	1 (12.5)	3 (37.5)	1 (12.5)	2 (25.0)	1 (12.5)	—	8
All Subjects	133 (13.2)	365 (36.3)	353 (35.1)	114 (11.3)	31 (3.1)	10 (1.0)	1006

- Note: i) Figures within brackets are percentages
ii) Percentages of sub-age group totals are calculated to the total of 'All Ages'.
iii) Percentages within each age-group are calculated w.r.t. its sub-total.

ANNEXURE XVI

Distribution of Ph.D scholars engaged in work other than research and Teaching by age groups and pay grades under various subject groups/subjects.

Subject group/subjects	Up to 30 years					30-39 years					
	-I	I	II	III	Total	-I	I	II	III	IV	Total
1	2	3	4	5	6	7	8	9	10	11	12
I. Phy. Sc.	2	4	3	—	9	17	15	21	8	—	61
	(22.2)	(44.5)	(33.3)		(11.1)	(27.9)	(24.6)	(34.4)	(13.1)		(75.3)
1. Physics	—	1	—	—	1	1	1	6	5	—	13
		(100.0)			(5.9)	(7.7)	(7.7)	(46.1)	(38.5)		(76.5)
2. Nuclear Physics	—	—	—	—	—	—	—	—	1	—	1
									(100.0)		(100.0)
3. Chemistry	2	3	3	—	8	14	13	13	1	—	41
	(25.0)	(37.5)	(37.5)		(14.3)	(34.1)	(31.7)	(31.7)	(2.4)		(73.2)
4. Mathematics	—	—	—	—	—	2	1	2	1	—	6
						(33.3)	(16.7)	(33.3)	(16.7)		(85.7)
5. Statistics	—	—	—	—	—	—	—	—	—	—	—
II. Technological sciences	—	—	—	—	—	1	5	4	1	—	11
						(9.1)	(45.5)	(36.3)	(9.1)		(44.0)
1. Civil Engg.	—	—	—	—	—	—	2	1	—	—	3
							(66.7)	(33.3)			(42.9)
2. Mechanical Engg.	—	—	—	—	—	—	—	2	1	—	3
								(66.7)	(33.3)		(33.3)
3. Electrical Engg.	—	—	—	—	—	—	—	—	—	—	—
4. Electronics & Com.Sc.	—	—	—	—	—	—	—	—	—	—	—
5. Chemical Engg.	—	—	—	—	—	1	2	—	—	—	3
						(33.3)	(66.7)				(75.0)
6. Chemical Tec.	—	—	—	—	—	—	1	—	—	—	1
							(100.0)				(100.0)
7. Engg. (others)	—	—	—	—	—	—	—	1	—	—	1
								(100.0)			(50.0)

ANNEXURE XVI Contd

	40-49 years						Above 50 years					
	-I	I	II	III	IV	Total	-I	I	II	III	IV	Total
	13	14	15	16	17	18	19	20	21	22	23	24
I. Physical Sciences	4	3	2	1	—	10	—	—	—	1	—	1
	(40.0)	(30.0)	(20.0)	(10.0)		(12.3)				(100.0)		(1.2)
1. Physics	1	1	—	—	—	2	—	—	—	1	—	1
	(50.0)	(50.0)				(11.7)				(100.0)		(5.9)
2. Nuclear Physics	—	—	—	—	—	—	—	—	—	—	—	—
3. Chemistry	3	2	1	1	—	7	—	—	—	—	—	—
	(42.8)	(28.6)	(14.3)	(14.3)		(12.5)						
4. Mathematics	—	—	1	—	—	1	—	—	—	—	—	—
			(100.0)			(14.3)						
5. Statistics	—	—	—	—	—	—	—	—	—	—	—	—
II. Technological Sciences	2	1	6	3	1	13	—	—	—	—	1	1
	(15.4)	(7.7)	(46.2)	(23.1)	(7.7)	(52.0)					(100.0)	(4.0)
1. Civil Engg.	—	—	2	—	1	3	—	—	—	—	1	1
			(66.7)		(33.3)	(42.9)					(100.0)	(14.2)
2. Mechanical Engg.	—	1	4	1	—	6	—	—	—	—	—	—
		(16.7)	(66.6)	(16.7)		(66.7)						
3. Electrical Engg.	—	—	—	2	—	2	—	—	—	—	—	—
				(100.0)		(100.0)						
4. Electronics & Computer Science	—	—	—	—	—	—	—	—	—	—	—	—
5. Chemical Engg.	1	—	—	—	—	1	—	—	—	—	—	—
	(100.0)					(25.0)						
6. Chemical Tech.	—	—	—	—	—	—	—	—	—	—	—	—
7. Engg. (others)	1	—	—	—	—	1	—	—	—	—	—	—
	(100.0)					(50.0)						

ANNEXURE XVI Contd

<i>All Ages</i>						
	-I	I	II	III	IV	Total
	25	26	27	28	29	30
I. Physical Sciences	23 (28.4)	22 (27.2)	26 (32.1)	10 (12.3)	-	81
1. Physics	2 (11.8)	3 (17.6)	6 (35.3)	6 (35.3)	-	17
2. Nuclear Physics	-	-	-	1 (100.0)	-	1
3. Chemistry	19 (33.9)	18 (32.1)	17 (30.4)	2 (3.6)	-	56
4. Mathematics	2 (28.6)	1 (14.3)	3 (42.8)	1 (14.3)	-	7
5. Statistics	-	-	-	-	-	-
II. Technological Sciences	3 (12.0)	6 (24.0)	10 (40.0)	4 (16.0)	2 (8.0)	25
1. Civil Engg.	-	2 (28.6)	3 (42.8)	-	2 (28.6)	7
2. Mechanical Engg.	-	1 (11.1)	6 (66.7)	2 (22.2)	-	9
3. Electrical Engg.	-	-	-	2 (100.0)	-	2
4. Electronics & Computer Sc.	-	-	-	-	-	-
5. Chemical Engg.	2 (50.0)	2 (50.0)	-	-	-	4
6. Chemical Tech.	-	1 (100.0)	-	-	-	1
7. Engg. (others)	1 (50.0)	-	1 (50.0)	-	-	2

ANNEXURE XVI Contd

1	2	3	4	5	6	7	8	9	10	11	12
III. Agricultural & Vety. Sciences	—	2 (100.0)	—	—	2 (4.0)	4 (15.4)	9 (34.6)	10 (38.5)	3 (11.5)	—	26 (52.0)
1. Agriculture	—	2 (100.0)	—	—	2 (4.3)	4 (17.4)	8 (34.8)	9 (39.1)	2 (8.7)	—	23 (50.0)
2. Vety. Sc.	—	—	—	—	—	—	1 (33.3)	1 (33.3)	1 (33.3)	—	3 (75.0)
IV. Medical Sc.	—	—	—	—	—	—	—	1 (50.0)	—	1 (50.0)	2 (40.0)
V. Bio Sc.	2 (66.7)	1 (33.3)	—	—	3 (5.5)	11 (31.4)	17 (48.6)	6 (17.1)	1 (2.9)	—	35 (63.6)
1. Botany	—	1 (100.0)	—	—	1 (5.6)	3 (27.3)	7 (63.6)	1 (9.1)	—	—	11 (61.1)
2. Zoology	1 (100.0)	—	—	—	1 (15.6)	5 (41.7)	5 (41.7)	2 (16.6)	—	—	12 (66.7)
3. Bio. Chem.	1 (100.0)	—	—	—	1 (20.0)	1 (25.0)	2 (50.0)	1 (25.0)	—	—	4 (80.0)
4. Biology (others)	—	—	—	—	—	2 (25.0)	3 (37.5)	2 (25.0)	1 (12.5)	—	8 (57.1)
VI. Geo. Sc.	—	1 (100.0)	—	—	1 (6.7)	—	6 (66.7)	1 (11.1)	2 (22.2)	—	9 (60.0)
1. Geology	—	1 (100.0)	—	—	1 (7.1)	—	5 (62.5)	1 (12.5)	2 (25.0)	—	8 (57.2)
2. Geography	—	—	—	—	—	—	1 (100.0)	—	—	—	1 (100.0)
3. Geo. physics	—	—	—	—	—	—	—	—	—	—	—
VII. Misc.	—	—	—	—	—	—	2 (50.0)	1 (25.0)	1 (25.0)	—	4 (100.0)
1. Anthropology	—	—	—	—	—	—	1 (33.3)	1 (33.3)	1 (33.3)	—	3 (100.0)
2. Others	—	—	—	—	—	—	1 (100.0)	—	—	—	1 (100.0)
All subjects	4 (26.7)	8 (53.3)	3 (20.0)	—	15 (6.4)	33 (22.3)	54 (36.5)	44 (29.7)	16 (10.8)	1 (0.7)	148 (63)

ANNEXURE XVI Contd

	13	14	15	16	17	18	19	20	21	22	23	24
III. Agricultural and Vety. Science	1 (5.9)	3 (17.6)	12 (70.6)	1 (5.9)	-	17 (34.0)	-	-	3	2	-	5
1. Agriculture	1 (5.9)	3 (17.6)	12 (70.6)	1 (5.9)	-	17 (37.0)	-	-	3 (75.0)	1 (25.0)	-	4 (8.7)
2. Vety. Science	-	-	-	-	-	-	-	-	-	1 (100.0)	-	1 (25.0)
IV. Medical Sc.	-	-	1 (100.0)	-	-	1 (20.0)	-	-	-	1 (50.0)	1 (50.0)	2 (40.0)
V. Bio. Science	1 (7.7)	3 (23.1)	7 (53.8)	2 (15.4)	-	13 (23.6)	-	-	2 (50.0)	2 (50.0)	-	4 (7.3)
1. Botany	1 (25.0)	-	1 (25.0)	2 (50.0)	-	4 (22.2)	-	-	1 (50.0)	1 (50.0)	-	2 (11.1)
2. Zoology	-	2 (40.0)	3 (60.0)	-	-	5 (27.8)	-	-	-	-	-	-
3. Biochemistry	-	-	-	-	-	-	-	-	-	-	-	-
4. Biology (others)	-	1 (25.0)	3 (75.0)	-	-	4 (28.6)	-	-	1 (50.0)	1 (50.0)	-	2 (14.3)
VI. Geo. Science	-	-	-	2 (66.7)	1 (33.3)	3 (20.0)	-	-	-	1 (50.0)	1 (50.0)	2 (13.3)
1. Geology	-	-	-	2 (66.7)	1 (33.3)	3 (21.4)	-	-	-	1 (50.0)	1 (50.0)	2 (14.3)
2. Geography	-	-	-	-	-	-	-	-	-	-	-	-
3. Geo-Physics	-	-	-	-	-	-	-	-	-	-	-	-
VII. Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-
1. Annthropology	-	-	-	-	-	-	-	-	-	-	-	-
2. Others	-	-	-	-	-	-	-	-	-	-	-	-
All Subjects	8 (14.0)	10 (17.6)	28 (49.1)	9 (15.8)	2 (3.5)	57 (24.2)	-	-	5 (33.3)	7 (46.7)	3 (20.0)	15 (6.4)

ANNEXURE XVI Contd

	25	26	27	28	29	30
III. Agriculture & Vety. Sc.	5 (10.0)	14 (28.0)	25 (50.0)	6 (12.0)	–	50
1. Agriculture	5 (10.9)	13 (28.2)	24 (52.2)	4 (8.7)	–	46
2. Vety. Sc.	–	1 (25.0)	1 (25.0)	2 (50.0)	–	4
IV. Medical Sc.	–	–	2 (40.0)	1 (20.0)	2 (40.0)	5
V. Bio. Science	14 (25.4)	21 (38.2)	15 (27.3)	5 (9.1)	–	55
1. Botany	4 (22.2)	8 (44.4)	3 (16.7)	3 (16.7)	–	18
2. Zoology	6 (33.3)	7 (38.9)	5 (27.8)	–	–	18
3. Biochemistry	2 (40.0)	2 (40.0)	1 (20.0)	–	–	5
4. Biology (others)	2 (14.3)	4 (28.6)	6 (42.8)	2 (14.3)	–	14
VI. Geo Science	–	7 (46.7)	1 (6.7)	5 (33.3)	2 (13.3)	15
1. Geology	–	6 (42.9)	1 (7.1)	5 (35.7)	2 (14.3)	14
2. Geography	–	1 (100.0)	–	–	–	1
3. Geo-Physics	–	–	–	–	–	–
VII. Miscellaneous	–	2 (50.0)	1 (25.0)	1 (25.0)	–	4
1. Anthropology	–	1 (33.3)	1 (33.3)	1 (33.3)	–	3
2. Others	–	1 (100.0)	–	–	–	1
All Subjects	45 (19.2)	72 (30.6)	80 (34.0)	32 (13.6)	6 (2.6)	235

Note: i) Figures within brackets are percentages
ii) Percentages of sub-age-group totals are calculated to the total of 'All Ages'
iii) Percentages within each age-group are calculated w.r.t. its sub-total.

Distribution of Ph.D Scholars by Type of Employing organisations

ALL SUBJECTS

Sl.No.	Nature of Work	TYPE OF ORGANISATION					Total
		Govt	Universities & Autonomous Organisations	Public Sector Undertakings	Private Sector Undertakings	Self Employed	
1.	Teaching	255(14.4) (37.6)	1503(85.0) (70.6)	3(0.2) (4.1)	7(0.4) (5.7)	—	1768(100.0) (58.8)
2.	Research	361(35.8) (53.4)	528(52.5) (24.8)	45(4.4) (61.6)	72(7.2) (58.0)	—	1006(100.0) (33.4)
3.	Other than Teaching & Research	61(26.0) (9.0)	97(41.3) (4.6)	25(10.6) (34.3)	45(19.1) (36.3)	7(3.0) (100.0)	235(100.0) (7.8)
	Total	677(22.5) (100.0)	2128(70.8) (100.0)	73(2.4) (100.0)	124(4.1) (100.0)	7(0.2) (100.0)	3009(100.0) (100.0)

Sub group-I: Physical Sciences

Sl.No.	Nature of Work	TYPE OF ORGANISATION					Total
		Govt	Universities & Autonomous Organisations	Public Sector Undertakings	Private Sector Undertakings	Self Employed	
1.	Teaching	128(17.5) (43.5)	600(81.8) (77.6)	2(0.3) (4.4)	3(0.4) (3.8)	—	733(100.0) (61.5)
2.	Research	145(38.5) (49.3)	157(41.6) (20.3)	31(8.2) (68.9)	44(11.7) (56.4)	—	377(100.0) (31.7)
3.	Other than Teaching & Research	21(25.9) (7.2)	16(19.8) (2.1)	12(14.8) (26.7)	31(38.3) (39.8)	1(1.2) (100.0)	81(100.0) (6.8)
	Total	294(24.7) (100.0)	773(64.9) (100.0)	45(3.8) (100.0)	78(6.5) (100.0)	1(0.01) (100.0)	1191(100.0) (100.0)

Sub group-II: Technological Sciences

Sl.No.	Nature of Work	TYPE OF ORGANISATION					Total
		Govt	Universities & Autonomous Organisations	Public Sector Undertakings	Private Sector Undertakings	Self Employed	
1.	Teaching	3(1.5) (23.1)	194(96.0) (77.3)	1(0.5) (11.1)	4(2.00) (19.0)	—	202(100.0) (68.5)
2.	Research	7(10.3) (53.8)	49(72.1) (19.5)	—	12(17.6) (57.1)	—	68(100.0) (23.1)
3.	Other than Teaching & Research	3(12.0) (23.1)	8(32.0) (3.2)	8(32.0) (88.9)	5(20.0) (23.9)	1(4.0) (100.0)	25(100.0) (8.4)
	Total	13(4.4) (100.0)	251(85.1) (100.0)	9(3.1) (100.0)	21(7.1) (100.0)	1(0.3) (100.0)	295(100.0) (100.0)

Subgroup : III : Agriculture & Veterinary Sciences

Sl.No.	Nature of Work	TYPE OF ORGANISATION					Total
		Govt	Universities & Autonomous Organisations	Public Sector Undertakings	Private Sector Undertakings	Self Employed	
1.	Teaching	8(3.6) (11.6)	214(96.4) (51.1)	—	—	—	222(100.0) (44.5)
2.	Research	55(24.2) (79.7)	166(73.1) (39.6)	—	6(2.7) (66.7)	—	227(100.0) (45.5)
3.	Other than Teaching & Research	6(12.0) (8.7)	39(78.0) (9.3)	2(4.0) (100.0)	3(6.0) (33.3)	—	50(100.0) (10.0)
	Total	69(13.8) (100.0)	419(84.0) (100.0)	2(0.4) (100.0)	9(1.8) (100.0)	—	499(100.0)

Subgroup : IV : Medical Science

Sl.No.	Nature of Work	TYPE OF ORGANISATION					Total
		Govt	Universities & Autonomous Organisations	Public Sector Undertakings	Private Sector Undertakings	Self Employed	
1.	Teaching	10(58.8) (100.0)	7(41.2) (100.0)	—	—	—	17(100.0) (77.3)
2.	Research	—	—	—	—	—	—
3.	Other than Teaching & Research	—	—	—	—	5(100.0) (100.0)	5(100.0) (22.7)
	Total	10(45.5) (100.0)	7(31.8) (100.0)	—	—	5(22.7) (100.0)	22(100.0) (100.0)

<i>TYPE OF ORGANISATION</i>						
<i>Sl.No. Nature of Work</i>	<i>Govt</i>	<i>Universities & Autonomous Organisations</i>	<i>Public Sector Undertakings</i>	<i>Private Sector Undertakings</i>	<i>Self Employed</i>	<i>Total</i>
1. Teaching	93(18.1) (38.6)	422(81.9) (71.1)	—	—	—	515(100.0) (60.2)
2. Research	134(47.0) (55.6)	138(48.4) (23.2)	3(1.1) (50.0)	10(3.5) (71.4)	—	285(100.0) (33.3)
3. Other than Teaching & Research	14(25.5) (5.8)	34(61.8) (5.7)	3(5.5) (50.0)	4(7.2) (28.6)	—	55(100.0) (6.5)
Total	241(28.2) (100.0)	594(69.4) (100.0)	6(0.7) (100.0)	14(1.7) (100.0)	—	855(100.0) (100.0)

Sub group : VI : Geo Sciences

<i>TYPE OF ORGANISATION</i>						
<i>Sl.No. Nature of Work</i>	<i>Govt</i>	<i>Universities & Autonomous Organisations</i>	<i>Public Sector Undertakings</i>	<i>Private Sector Undertakings</i>	<i>Self Employed</i>	<i>Total</i>
1. Teaching	11(16.4) (27.5)	56(83.6) (86.2)	—	—	—	67(100.0) (57.8)
2. Research	14(41.2) (35.0)	9(26.5) (13.8)	11(32.3) (100.0)	—	—	34(100.0) (29.3)
3. Other than Teaching & Research	15(100.0) (37.5)	—	—	—	—	15(100.0) (12.9)
Total	40(34.5) (100.0)	65(56.0) (100.0)	11(9.5) (100.0)	—	—	116(100.0) (100.0)

Subgroup : VII : Miscellaneous

<i>TYPE OF ORGANISATION</i>						
<i>Sl.No. Nature of Work</i>	<i>Govt</i>	<i>Universities & Autonomous Organisations</i>	<i>Public Sector Undertakings</i>	<i>Private Sector Undertakings</i>	<i>Self Employed</i>	<i>Total</i>
1. Teaching	2(16.7) (20.0)	10(83.3) (52.6)	—	—	—	12(100.0) (38.7)
2. Research	6(40.0) (60.0)	9(60.0) (47.4)	—	—	—	15(100.0) (48.4)
3. Other than Teaching & Research	2(50.0) (20.0)	—	—	2(50.0) (100.0)	—	4(100.0) (12.9)
Total	10(32.3) (100.0)	19(61.3) (100.0)	—	2(6.4) (100.0)	—	31(100.0) (100.0)

Career prospects of Male and Female scholars in teaching

Males

Subject group	All Ages				
	(-I)	I	II	III	Total
1	2	3	4	5	6
1. Physical Sciences	26 (4.0)	416 (63.9)	188 (28.9)	21 (3.2)	651 (100.0)
2. Technological Sciences	1 (0.5)	33 (16.6)	104 (52.3)	61 (30.6)	199 (100.0)
3. Agr. & Vety. Sciences	2 (0.9)	70 (32.0)	117 (53.4)	30 (13.7)	219 (100.0)
4. Medical Sciences	—	1 (9.1)	4 (36.4)	6 (54.5)	11 (100.0)
5. Bio-Sciences	22 (5.2)	281 (66.1)	107 (25.2)	15 (3.5)	425 (100.0)
6. Geo-Sciences	2 (3.1)	38 (59.4)	23 (35.9)	1 (1.6)	64 (100.0)
7. Miscellaneous	1 (12.5)	4 (50.0)	2 (25.0)	1 (12.5)	8 (100.0)
Total	54 (3.4)	843 (53.4)	545 (34.6)	135 (8.6)	1577 (100.0)

Females

1	2	3	4	5	6
1. Physical Sciences	10 (12.2)	59 (71.9)	13 (15.9)	—	82 (100.0)
2. Technological Sciences	—	1 (33.3)	1 (33.3)	1 (33.3)	3 (100.0)
3. Agl. & Vety Sciences	1 (33.3)	1 (33.3)	1 (33.3)	—	3 (100.0)
4. Medical Sciences	—	3 (50.0)	1 (16.7)	2 (33.3)	6 (100.0)
5. Bio-Sciences	11 (12.2)	62 (68.9)	13 (14.4)	4 (4.4)	90 (100.0)
6. Geo-Sciences	—	3 (100.0)	—	—	3 (100.0)
6. Miscellaneous	—	2 (50.0)	1 (25.0)	1 (25.0)	4 (100.0)
Total	22 (11.5)	131 (68.6)	30 (15.7)	8 (4.2)	191 (100.0)

Note: Figures within brackets are percentages.

Career Prospects of Male and Female scholars in Research

Males

Subject groups	All ages						Total
	(-I)	I	II	III	IV	V	
1	2	3	4	5	6	7	8
I. Physical Sciences	34 (9.9)	115 (33.5)	120 (35.0)	49 (14.3)	17 (5.0)	8 (2.3)	343 (100.0)
II. Technological Sciences	5 (7.6)	12 (18.2)	20 (30.3)	23 (34.8)	6 (9.1)	—	66 (100.0)
III. Agl. & Vety. Sciences	12 (5.5)	82 (37.4)	110 (50.2)	15 (6.9)	—	—	219 (100.0)
IV. Medical Sciences	—	—	—	—	—	—	—
V. Bio-Sciences	41 (18.2)	101 (44.9)	65 (28.9)	12 (5.3)	5 (2.2)	1 (0.4)	225 (100.0)
VI. Geo-Sciences	2 (6.3)	7 (21.9)	15 (46.9)	6 (18.8)	1 (3.1)	1 (3.1)	32 (100.0)
VII. Miscellaneous	4 (40.0)	2 (20.0)	2 (20.0)	1 (10.0)	1 (10.0)	—	10 (100.0)
Total	98 (10.9)	319 (35.6)	332 (37.1)	106 (11.8)	30 (3.4)	10 (1.1)	895 (100.0)

Females

1	2	3	4	5	6	7	8
I. Physical Sciences	8 (23.5)	13 (38.2)	9 (26.5)	3 (8.8)	1 (2.9)	—	34 (100.0)
II. Technological Sciences	1 (50.0)	1 (50.0)	—	—	—	—	2 (100.0)
III. Agl & Vety Sciences	3 (37.5)	4 (50.0)	1 (12.5)	—	—	—	8 (100.0)
IV. Medical Sciences	—	—	—	—	—	—	—
V. Bio-Sciences	21 (35.0)	23 (38.3)	13 (21.7)	3 (5.0)	—	—	60 (100.0)
VI. Geo-Sciences	1 (50.0)	1 (50.0)	—	—	—	—	2 (100.0)
VII. Miscellaneous	1 (20.0)	2 (40.0)	—	2 (40.0)	—	—	5 (100.0)
Total	35 (31.5)	46 (41.4)	21 (18.9)	8 (7.2)	1 (0.9)	—	111 (100.0)

Note: Figures within brackets are percentages.

Career prospects of male and female scholars engaged in work other than research/teaching.

							Males
Subject group	(-I)	I	II	III	IV	Total	
1	2	3	4	5	6	7	
I. Physical Sciences	18 (25.0)	22 (30.6)	23 (31.9)	9 (12.5)	—	72 (100.0)	
II. Technological Sciences	3 (12.0)	6 (24.0)	10 (40.0)	4 (16.0)	2 (8.0)	25 (100.0)	
III. Agl & Vety Sciences	3 (6.4)	13 (27.6)	25 (53.2)	6 (12.8)	—	47 (100.0)	
IV. Medical Sciences	—	1 (25.0)	1 (25.0)	2 (50.0)	—	4 (100.0)	
V. Bio-Sciences	11 (22.5)	18 (36.7)	15 (30.6)	5 (10.2)	—	49 (100.0)	
VI. Geo-Sciences	—	7 (46.7)	1 (6.7)	5 (33.3)	2 (13.3)	15 (100.0)	
VII. Miscellaneous	—	1 (50.0)	1 (50.0)	—	—	2 (100.0)	
Total	35 (16.4)	67 (31.3)	76 (35.5)	30 (14.0)	6 (2.8)	214 (100.0)	
							Females
1	2	3	4	5	6	7	
I. Physical Sciences	5 (55.6)	—	3 (33.3)	1 (11.1)	—	9 (100.0)	
II. Technological	—	—	—	—	—	—	
III. Agl & Vety Sciences	2 (66.7)	1 (33.33)	—	—	—	3 (100.0)	
IV. Medical Sciences	—	—	1 (100.0)	—	—	1 (100.0)	
V. Bio-Sciences	3 (50.0)	3 (50.0)	—	—	—	6 (100.0)	
VI. Geo-Sciences	—	—	—	—	—	—	
VII. Miscellaneous	—	1 (50.0)	—	1 (50.0)	—	2 (100.0)	
Total	10 (47.6)	5 (23.8)	4 (19.1)	2 (9.5)	—	21 (100.0)	

Note: Figures within brackets are percentages.

Distribution of scholars (Alongwith their percentage) according to the reasons for doing Ph.D by subject groups/subjects.

Subject group/Subjects	a	b	c	d	e	f
1	2	3	4	5	6	7
<u>Physical Sciences</u>	69 (5.98)	37 (3.21)	159 (13.78)	747 (64.73)	826 (71.58)	91 (7.89)
Physics	26 (8.78)	9 (3.04)	31 (10.47)	192 (64.86)	242 (81.76)	24 (8.11)
Nuclear Physics	1 (6.25)	1 (6.25)	—	9 (56.25)	14 (87.50)	2 (12.50)
Chemistry	29 (4.70)	18 (2.92)	93 (15.07)	398 (64.51)	402 (65.15)	44 (7.13)
Mathematics	11 (5.79)	7 (3.68)	28 (14.74)	122 (64.21)	143 (75.26)	16 (8.42)
Statistics	2 (5.71)	2 (5.71)	7 (20.00)	26 (74.29)	25 (71.43)	5 (14.29)
<u>Technological Sciences</u>	41 (13.76)	21 (7.05)	24 (8.05)	189 (63.42)	213 (71.48)	26 (8.72)
Civil Engg.	10 (13.51)	3 (4.05)	2 (2.70)	44 (59.46)	56 (75.68)	5 (6.76)
Mechanical Engg.	13 (19.40)	7 (10.45)	11 (16.41)	44 (65.67)	47 (70.15)	8 (11.94)
Electrical Engg.	10 (25.64)	5 (12.82)	—	26 (66.67)	30 (76.92)	1 (2.56)
Electronics & Computer Sc.	2 (6.67)	1 (3.33)	3 (10.00)	17 (56.67)	22 (73.33)	4 (13.33)
Chemical Engg.	1 (3.23)	2 (6.45)	3 (9.68)	22 (70.97)	25 (80.65)	3 (9.68)
Chemical Technology	—	2 (11.76)	2 (11.76)	13 (76.47)	8 (47.08)	3 (17.65)
Engg. (others)	5 (12.50)	1 (2.50)	3 (7.50)	28 (70.00)	30 (75.00)	2 (5.00)
<u>Agri & Vety Sciences</u>	23 (6.5)	48 (13.5)	52 (14.6)	254 (71.5)	219 (61.7)	13 (3.7)
Ag. Sciences	18 (6.0)	35 (11.7)	45 (15.1)	220 (73.6)	184 (61.5)	9 (3.0)
Vety. Sciences	5 (8.9)	13 (23.2)	7 (12.5)	34 (60.7)	35 (62.5)	4 (7.1)
<u>Medical Sciences</u>	—	—	1 (4.3)	7 (30.4)	20 (87.0)	1 (4.3)
<u>Biological Sciences</u>	74 (8.46)	44 (5.03)	173 (19.77)	577 (65.94)	688 (78.63)	60 (6.86)
Botany	39 (11.44)	15 (4.40)	62 (18.18)	227 (66.57)	260 (76.25)	23 (6.74)
Zoology	18 (6.55)	8 (2.91)	58 (21.09)	177 (64.36)	235 (85.45)	20 (7.27)

Biology (others)	11 (6.96)	15 (9.49)	34 (21.52)	93 (58.86)	118 (74.68)	8 (5.06)
Bio.Chem.	6 (5.94)	6 (5.94)	19 (18.81)	80 (79.21)	75 (74.26)	9 (8.91)
<u>Geo-Sciences</u>	5 (4.20)	3 (2.52)	12 (10.08)	69 (57.98)	89 (74.79)	10 (8.40)
Geology	2 (2.94)	3 (4.41)	6 (8.82)	40 (58.82)	56 (82.35)	6 (8.82)
Geography	3 (9.37)	—	2 (6.25)	21 (65.62)	20 (62.50)	3 (9.37)
Geo.Physics	—	—	4 (21.05)	8 (42.11)	13 (68.42)	1 (5.26)
<u>Miscellaneous</u>	2 (6.90)	3 (10.34)	5 (17.24)	17 (58.62)	24 (82.76)	2 (6.98)
Anthropology	1 (7.69)	2 (15.38)	4 (30.79)	8 (61.54)	10 (76.92)	1 (7.69)
Others	1 (6.25)	1 (6.25)	1 (6.25)	9 (56.25)	14 (87.50)	1 (6.25)
Grand Total	214 (7.50)	156 (5.47)	426 (14.93)	1865 (65.37)	2084 (73.05)	203 (7.12)

- Note : (i) (a) because I was sponsored by an organisation
 (b) to meet mandatory requirement of the organisation I was employed in
 (c) to get a particular job I had in view
 (d) to improve my career prospects
 (e) for genuine desire for knowledge/skill in the subject/field
 (f) for the reason stated below in brief.
- (ii) Figures in brackets are percentage. These are w.r. to total number of scholars in the subject/group. These would add upto more than 100 since such many scholars had more than one reason for doing Ph.D.

Distribution of male scholars (Alongwith Percentage) according to the reasons for doing Ph.D by subject groups.

Subject groups	a	b	c	d	e	f
1	2	3	4	5	6	7
Physical Sciences	67 (6.49)	33 (3.19)	135 (13.07)	669 (64.76)	738 (71.44)	85 (8.23)
Technological Sciences	41 (14.04)	21 (7.19)	24 (8.22)	189 (64.73)	213 (72.95)	26 (8.90)
Agl & Vety Sciences	23 (6.7)	47 (13.7)	48 (14.0)	250 (72.7)	210 (61.0)	13 (3.8)
Medical Sciences	—	—	1 (6.3)	4 (25.0)	15 (93.8)	1 (6.3)
Bio.Sciences	59 (8.53)	36 (5.20)	133 (19.22)	444 (64.16)	523 (75.58)	51 (7.37)
Geo.Sciences	4 (3.57)	3 (2.68)	10 (8.93)	62 (55.36)	84 (75.00)	8 (7.14)
Misc.	2 (10.00)	3 (15.00)	2 (10.00)	12 (60.00)	16 (80.00)	1 (5.00)
Total	196 (7.81)	143 (5.70)	353 (14.07)	1630 (64.97)	1799 (71.70)	185 (7.37)

Note: a, b, c, d, e, f here carry the same meanings as explained at the end of Annexure XX.

ANNEXURE XXII Contd.

Distribution of Female scholars (Alongwith percentages) according to the reasons for doing Ph.D by subject groups.

Subject groups	a	b	c	d	e	f
1	2	3	4	5	6	7
Physical Sciences	2 (1.65)	4 (3.31)	24 (19.83)	78 (64.46)	88 (72.73)	6 (4.96)
Technological Sciences	—	—	—	5 (83.33)	5 (83.33)	—
Agl & Vety Sciences	—	1 (9.1)	4 (36.4)	4 (36.4)	9 (81.8)	—
Medical Sciences	—	—	—	3 (42.9)	5 (71.4)	—
Bio. Sciences	15 (8.20)	8 (4.37)	40 (21.86)	133 (72.68)	165 (90.16)	9 (4.92)
Geo. Sciences	1 (14.29)	—	2 (28.57)	7 (100.0)	5 (71.43)	2 (28.57)
Misc.	—	—	3 (33.33)	5 (55.56)	8 (88.89)	1 (11.11)
Total	18 (5.23)	13 (3.78)	73 (21.22)	235 (68.31)	285 (82.85)	18 (5.23)

Note: a, b, c, d, e, f, here carry the same meanings as explained at the end of Annexure.

Distribution of Ph.D Scholars who could attain their objectives fully or partially or not by age groups and subject group/subjects

Subject group/Subjects	Below 30 years			30-39 years			40-49 years		
	Y	P	N	Y	P	N	Y	P	N
1	2	3	4	5	6	7	8	9	10
I. Physical Sciences	31	12	10	408	153	87	185	119	47
	(58.5)	(22.6)	(18.9)	(63.0)	(23.6)	(13.4)	(52.7)	(33.9)	(13.4)
1. Physics	4	3	1	85	40	15	62	48	7
	(50.0)	(37.5)	(12.5)	(60.7)	(28.6)	(10.7)	(53.0)	(41.0)	(6.0)
2. Nuclear Physics	—	—	—	8	—	—	1	3	1
				(100.0)			(20.0)	(60.0)	(20.0)
3. Chemistry	25	7	9	235	86	66	88	39	32
	(61.0)	(17.1)	(21.9)	(60.7)	(22.2)	(17.1)	(55.4)	(24.5)	(20.1)
4. Maths	1	2	—	66	25	5	29	25	6
	(33.3)	(66.7)	(0.0)	(68.8)	(26.0)	(5.2)	(48.3)	(41.7)	(10.0)
5. Statistics	1	—	—	14	2	1	5	4	1
	(100.0)	(0.0)	(0.0)	(82.3)	(11.8)	(5.9)	(50.0)	(40.0)	(10.0)
II. Technological Sciences	1	1	—	74	29	6	96	44	8
	(50.0)	(50.0)	(0.0)	(67.9)	(26.6)	(5.5)	(64.9)	(29.7)	(5.4)
1. Civil Engg.	—	—	—	14	3	1	21	19	4
				(77.8)	(16.7)	(5.5)	(47.7)	(43.2)	(9.1)
2. Mech. Engg.	—	—	—	9	7	—	27	11	—
				(56.3)	(43.7)	(0.0)	(71.0)	(29.0)	(0.0)
3. Electrical Engg.	—	—	—	6	2	—	16	8	3
				(75.0)	(25.0)	(0.0)	(59.3)	(29.6)	(11.1)
4. Electronics & Computer Sc.	—	—	—	15	5	—	7	1	—
				(75.0)	(25.0)	(0.0)	(87.5)	(12.5)	(0.0)
5. Chemical Engg.	1	—	—	14	4	1	7	2	1
	(100.0)	(0.0)	(0.0)	(73.7)	(21.0)	(5.3)	(70.0)	(20.0)	(10.0)
6. Chemical Technology	—	1	—	9	1	2	3	—	—
	(0.0)	(100.0)	(0.0)	(75.0)	(8.3)	(16.7)	(100.0)	(0.0)	(0.0)
7. Engg.(others)	—	—	—	7	7	2	15	3	—
				(43.7)	(43.7)	(12.6)	(83.3)	(16.7)	

ANNEXURE XXIII Contd

	<i>50 & Above</i>			<i>All Ages</i>			
	<i>Y</i>	<i>P</i>	<i>N</i>	<i>Y</i>	<i>P</i>	<i>N</i>	<i>T</i>
	11	12	13	14	15	16	17
I. Physical Sc.	37 (59.7)	18 (20.0)	7 (11.3)	661 (59.3)	302 (27.1)	151 (13.6)	1114 (100.0)
1. Physics	11 (64.7)	4 (23.5)	2 (11.8)	162 (57.4)	95 (33.7)	25 (8.9)	282 (100.0)
2. Nuclear Physics	1 (100.0)	—	—	10 (71.5)	3 (21.4)	1 (7.1)	14 (100.0)
3. Chemistry	11 (50.0)	7 (31.8)	4 (18.2)	359 (59.0)	139 (22.8)	111 (18.2)	609 (100.0)
4. Maths	12 (60.0)	7 (35.0)	1 (5.0)	108 (60.3)	59 (33.0)	12 (6.7)	179 (100.0)
5. Statistics	2 (100.0)	—	—	22 (73.3)	6 (20.0)	2 (6.7)	30 (100.0)
II. Technological Sc.	18 (58.1)	10 (32.2)	3 (9.7)	189 (65.2)	80 (27.6)	21 (7.2)	290 (100.0)
1. Civil Engg.	9 (64.3)	4 (28.6)	1 (7.1)	44 (57.9)	26 (34.2)	6 (7.9)	76 (100.0)
2. Mech. Engg.	3 (50.0)	3 (50.0)	—	39 (65.0)	21 (35.0)	—	60 (100.0)
3. Electrical Engg.	2 (66.7)	1 (33.3)	—	24 (63.2)	11 (28.9)	3 (7.9)	38 (100.0)
4. Electronics & Com. Sc.	—	1 (100.0)	—	22 (75.9)	6 (20.7)	1 (3.4)	29 (100.0)
5. Chemical Engg.	1 (100.0)	—	—	23 (74.2)	6 (19.4)	2 (6.4)	31 (100.0)
6. Chemical Tech.	—	—	1 (100.0)	12 (70.6)	2 (11.8)	3 (17.6)	17 (100.0)
7. Engg. (others)	3 (60.0)	1 (20.0)	1 (20.0)	25 (64.1)	8 (20.5)	6 (15.4)	39 (100.0)

ANNEXURE XXIII Contd

Subject group/Subjects	Below 30 years			30-39 years			40-49 years		
	Y	P	N	Y	P	N	Y	P	N
1	2	3	4	5	6	7	8	9	10
III. Ag & Vety Sciences	6	1	2	112	25	24	100	31	10
	(66.7)	(11.1)	(22.2)	(69.6)	(15.5)	(14.9)	(70.9)	(22.0)	(7.1)
Agriculture	6	1	2	103	21	24	85	20	9
	(66.7)	(11.1)	(22.2)	(69.6)	(14.2)	(16.2)	(74.6)	(17.5)	(7.9)
Vety. Science	—	—	—	9	4	—	15	11	1
				(69.2)	(30.8)		(55.6)	(40.7)	(3.7)
IV. Medical Sciences	—	—	—	4	1	—	4	1	3
				(80.0)	(20.0)		(50.0)	(12.5)	(37.5)
V. Bio Sciences	31	14	9	342	122	55	138	52	23
	(57.4)	(25.9)	(16.7)	(65.9)	(23.3)	(10.6)	(64.8)	(24.4)	(10.8)
1. Botany	15	10	6	130	58	26	45	20	12
	(48.4)	(32.3)	(19.3)	(60.7)	(27.1)	(12.2)	(58.4)	(26.0)	(15.6)
2. Zoology	8	2	2	110	33	17	47	16	6
	(66.6)	(16.7)	(16.7)	(68.8)	(20.6)	(10.6)	(68.1)	(23.2)	(8.7)
3. Biology (others)	5	—	—	58	18	10	32	9	3
	(100.0)			(67.4)	(20.9)	(11.6)	(72.7)	(20.5)	(6.8)
4. Bio-Chemistry	3	2	1	44	13	2	14	7	2
	(50.0)	(33.3)	(16.7)	(74.6)	(22.0)	(3.4)	(60.9)	(30.4)	(8.7)
VI. Geo-Sciences	3	1	—	46	15	5	19	8	1
	(75.0)	(25.0)		(69.7)	(22.7)	(7.6)	(67.9)	(28.6)	(3.5)
1. Geology	1	1	—	27	6	2	8	8	—
	(50.0)	(50.0)		(77.2)	(17.1)	(5.7)	(50.0)	(50.0)	
2. Geography	1	—	—	13	4	3	5	—	1
	(100.0)			(65.0)	(20.0)	(15.0)	(83.3)		(16.7)
3. Geophysics	1	—	—	6	5	—	6	—	—
	(100.0)			(54.5)	(45.5)		(100.0)		
VII. Misc.	—	—	—	—	8	5	3	1	1
					(50.0)	(31.3)	(18.7)	(60.0)	(20.0)
1. Anthropology	—	—	—	2	5	1	2	—	—
				(25.0)	(62.5)	(12.5)	(100.0)		
2. Others	—	—	—	6	—	2	1	1	1
				(75.0)		(25.0)	(33.3)	(33.3)	(33.3)
Grand Total	72	29	21	994	350	180	545	256	93
	(59.0)	(23.8)	(7.2)	(65.2)	(23.0)	(11.8)	(61.0)	(28.6)	(10.4)

ANNEXURE XXIII Contd

	50 & Above			All Ages			
	Y	P	N	Y	P	N	T
	11	12	13	14	15	16	17
III. Agriculture & Vety. Sc.	14 (45.2)	14 (45.2)	3 (9.7)	232 (67.8)	71 (20.8)	39 (11.4)	342 (100.0)
1. Agriculture	12 (54.6)	7 (31.8)	3 (13.6)	206 (70.3)	49 (16.7)	38 (13.0)	293 (100.0)
2. Vety Sciences	2 (22.2)	7 (77.8)	—	26 (53.1)	22 (44.9)	1 (2.0)	49 (100.0)
IV. Medical Sc.	7 (77.8)	1 (11.1)	1 (11.1)	15 (68.2)	3 (13.6)	22 (18.2)	22 (100.0)
V. Bio Sciences	32 (68.1)	8 (17.0)	7 (14.9)	543 (65.2)	196 (23.5)	94 (11.3)	833 (100.0)
1. Botany	11 (61.1)	4 (22.2)	3 (16.7)	201 (59.1)	92 (27.1)	47 (13.8)	340 (100.0)
2. Zoology	9 (69.2)	2 (15.4)	2 (15.4)	174 (68.5)	53 (20.9)	27 (10.6)	254 (100.0)
3. Biology (others)	10 (76.9)	2 (15.4)	1 (7.7)	105 (70.9)	29 (19.6)	14 (9.5)	148 (100.0)
4. Bio-chemistry	2 (66.7)	—	1 (33.3)	63 (69.2)	22 (24.2)	6 (6.6)	91 (100.0)
VI. Geo. Sciences	8 (72.7)	2 (18.2)	1 (9.1)	76 (69.7)	26 (23.9)	7 (6.4)	109 (100.0)
1. Geology	5 (71.4)	1 (14.3)	1 (14.3)	41 (68.3)	16 (27.7)	3 (5.0)	60 (100.0)
2. Geography	3 (75.0)	1 (25.0)	—	22 (71.0)	5 (16.1)	4 (12.9)	31 (100.0)
3. Geo-Physics	—	—	—	13 (72.2)	5 (27.8)	—	18 (100.0)
VII. Misc.	5 (62.5)	2 (25.0)	1 (12.5)	16 (55.2)	8 (27.6)	5 (17.2)	29 (100.0)
1. Anthropology	3 (50.0)	2 (33.3)	1 (16.7)	10 (58.8)	3 (17.7)	4 (23.5)	17 (100.0)
2. Others	2 (100.0)	—	—	6 (50.0)	5 (41.7)	1 (8.3)	12 (100.0)
Grand Total	121 (60.8)	55 (27.6)	23 (11.6)	1732 (63.2)	686 (25.1)	321 (11.7)	2739 (100.0)

Note: (i) Y : Fully, P : Partially, N : No, T : Total

(ii) Figures within brackets are percentages in the respective age-groups.

Distribution of Ph.D Scholars who could attain their objectives fully, partially or not by age groups and broad subject groups for males and females separately

(Males)

Subject group	Below 30 years			30-39 years			40-49 years		
	Y	P	N	Y	P	N	Y	P	N
1	2	3	4	5	6	7	8	9	10
1. Physical Sciences	27 (62.8)	9 (20.9)	7 (16.3)	360 (63.8)	133 (23.6)	71 (12.6)	174 (52.4)	113 (34.0)	45 (13.6)
2. Technological Sciences	1 (100.0)	— (0.0)	— (0.0)	70 (66.7)	29 (27.6)	6 (5.7)	95 (64.6)	44 (29.9)	8 (5.5)
3. Ag. & Vety Sciences	5 (71.4)	1 (14.3)	1 (14.3)	108 (71.1)	20 (13.2)	24 (15.8)	100 (70.9)	31 (22.0)	10 (7.1)
4. Medical Sciences	—	—	—	3 (75.0)	1 (25.0)	—	2 (50.0)	—	2 (50.0)
5. Bio-Sciences	27 (65.9)	8 (19.5)	6 (14.6)	267 (67.3)	85 (21.4)	45 (11.3)	118 (63.8)	47 (25.4)	20 (10.8)
6. Geo Sciences	3 (75.0)	1 (25.0)	— (0.0)	43 (70.5)	13 (21.3)	5 (8.2)	18 (66.7)	8 (29.6)	1 (3.7)
7. Misc.	— (0.0)	— (0.0)	— (0.0)	6 (50.0)	4 (33.3)	2 (16.7)	1 (100.0)	— (0.0)	— (0.0)
Total	63 (65.6)	19 (19.8)	14 (14.6)	857 (66.2)	285 (22.0)	153 (11.0)	508 (60.7)	243 (29.0)	86 (10.3)
(Females)									
1. Physical Sciences	4 (40.0)	3 (30.0)	3 (30.0)	48 (57.1)	20 (23.8)	16 (19.1)	11 (57.9)	6 (31.6)	2 (10.5)
2. Technological Sciences	— (0.0)	1 (100.0)	— (0.0)	4 (100.0)	— (0.0)	— (0.0)	1 (100.0)	— (0.0)	— (0.0)
3. Ag. & Vety Sciences	1 (50.0)	—	1 (50.0)	4 (44.4)	5 (55.6)	—	—	—	—
4. Medical Science	—	—	—	1 (100.0)	—	—	2 (50.0)	1 (25.0)	1 (25.0)
5. Bio-Sciences	4 (30.8)	6 (46.1)	3 (23.1)	75 (61.5)	37 (30.3)	10 (8.2)	20 (71.4)	5 (17.9)	3 (10.7)
6. Geo-Sciences	—	—	—	3 (60.3)	2 (40.0)	—	1 (100.0)	—	—
7. Misc.	—	—	—	2 (50.0)	1 (25.0)	1 (25.0)	2 (50.0)	1 (25.0)	1 (25.0)
Total	9 (34.6)	10 (38.5)	7 (26.9)	137 (59.8)	65 (28.4)	27 (11.8)	37 (64.9)	13 (22.8)	7 (12.3)

ANNEXURE XXIV Contd

	<i>50 & Above</i>			<i>All Ages</i>			
	<i>Y</i>	<i>P</i>	<i>N</i>	<i>Y</i>	<i>P</i>	<i>N</i>	<i>T</i>
	11	12	13	14	15	16	17
1. Physical Sciences	37 (62.7)	16 (27.1)	6 (10.2)	598 (59.9)	271 (27.2)	129 (12.9)	998 (100.0)
2. Technological Sciences	18 (58.1)	10 (32.2)	3 (9.7)	184 (64.8)	79 (27.8)	21 (7.4)	284 (100.0)
3. Ag. & Vety Sciences	14 (45.2)	14 (45.2)	3 (9.6)	227 (68.6)	66 (19.9)	38 (11.5)	331 (100.0)
4. Medical Science	6 (85.7)	1 (14.3)	—	11 (73.3)	2 (13.3)	2 (13.3)	15 (100.00)
5. Bio-Sciences	28 (66.7)	8 (19.0)	6 (14.3)	440 (66.2)	148 (22.3)	77 (11.5)	665 (100.0)
6. Geo-Sciences	8 (72.7)	2 (18.2)	1 (9.1)	72 (69.9)	24 (23.3)	7 (6.8)	103 (100.0)
7. Misc.	5 (71.4)	2 (28.6)	— (0.0)	12 (60.0)	6 (30.0)	2 (10.0)	20 (100.0)
Total	116 (61.7)	53 (28.2)	19 (10.1)	1544 (63.9)	596 (24.1)	276 (11.4)	2416 (100.0)
(Females)							
1. Physical Sciences	— (0.0)	2 (66.7)	1 (33.3)	63 (54.3)	31 (26.7)	22 (19.0)	116 (100.0)
2. Technological Sciences	— (0.0)	— (0.0)	— (0.0)	5 (83.3)	1 (16.7)	—	6 (100.0)
3. Ag. & Vety Sciences	—	—	—	5 (45.5)	5 (45.5)	1 (9.0)	11 (100.0)
4. Medical Sciences	1 (50.0)	—	1 (50.0)	4 (57.1)	1 (14.3)	2 (28.6)	7 (100.0)
5. Bio-Sciences	4 (80.0)	— (0.0)	1 (20.0)	103 (61.3)	48 (28.6)	17 (10.1)	168 (100.0)
6. Geo-Sciences	— (0.0)	— (0.0)	— (0.0)	4 (66.7)	2 (33.3)	—	6 (100.0)
7. Misc.	— (0.0)	— (0.0)	1 (100.0)	4 (44.5)	2 (22.2)	3 (33.3)	9 (100.0)
Total	5 (45.5)	2 (18.2)	4 (36.3)	188 (58.2)	90 (27.9)	45 (13.9)	323 (100.0)

Note: (i) Y : Yes, Fully, P : Partially, N : No
(ii) Figures within brackets are percentages in the respective age groups.

Distribution of the Ph.D scholars showing linkage of Ph.D with employment by subject group/subjects

Subject group/subjects *	Essential	Desirable	Not needed	TOTAL
1	2	3	4	5
I. Physical Sc.	296 (26.0)	480 (42.1)	364 (31.9)	<u>1140</u>
1. Physics	78 (26.8)	126 (43.3)	87 (29.9)	291 (25.5)
2. Nuclear Physics	1 (6.3)	10 (62.5)	5 (31.2)	16 (1.4)
3. Chemistry	158 (23.8)	242 (39.5)	212 (34.5)	612 (53.7)
4. Mathematics	43 (23.8)	83 (45.9)	55 (30.4)	181 (15.9)
5. Statistics	16 (40)	19 (47.5)	5 (12.5)	40 (3.5)
II. Technological Sciences	67 (23.4)	138 (48.3)	81 (28.3)	<u>286</u>
1. Civil Engg.	9 (12.3)	40 (54.8)	24 (32.9)	73 (25.5)
2. Mechanical Engg.	18 (27.7)	31 (47.7)	16 (24.6)	65 (22.7)
3. Electrical Engg.	12 (32.4)	17 (46)	8 (21.6)	37 (12.9)
4. Electronics & Computer Sc.	9 (36)	9 (36)	7 (28)	25 (8.7)
5. Chemical Engg.	6 (18.8)	16 (50)	10 (31.2)	32 (11.2)
6. Chemical Tech.	7 (43.8)	4 (25)	5 (31.2)	16 (5.6)
7. Engg.(others)	6 (15.8)	21 (55.3)	11 (28.9)	38 (13.3)
III. Agricultural and Vety Science	210 (41.7)	194 (38.5)	100 (19.8)	504
Agriculture	177 (39.2)	186 (41.7)	89 (19.7)	452 (89.7)
Vety. Science	33 (63.5)	8 (15.4)	11 (21.1)	52 (10.3)
IV. Medical Sciences	3 (13.6)	5 (22.7)	14 (63.6)	<u>22</u>
V. Bio-Sciences	236 (28.7)	339 (41.3)	246 (30)	<u>821</u>
1. Botany	72 (22.6)	126 (39.6)	120 (37.7)	318 (38.7)
2. Zoology	58 (23.8)	112 (45.9)	74 (30.3)	244 (29.7)
3. Bio-chemistry	39 (42.8)	33 (36.3)	19 (20.9)	21 (11.1)
4. Biology (others)	67 (39.9)	68 (40.5)	33 (19.6)	168 (20.5)
VI. Geo-Sciences	32 (30.8)	36 (34.6)	36 (34.6)	<u>104</u>
1. Geology	13 (22.8)	20 (35.1)	24 (42.1)	57 (54.8)
2. Geography	13 (41.9)	12 (38.7)	6 (19.4)	31 (29.8)
3. Geo physics	6 (37.5)	4 (25.0)	6 (37.5)	16 (15.4)
VII. Misc.	9 (31)	10 (34.5)	10 (34.5)	<u>29</u>
1. Anthropology	4 (30.8)	6 (46.1)	3 (23.1)	13 (44.8)
2. Others	5 (31.2)	4 (25)	7 (43.8)	16 (55.2)
Total	853 (29.3)	1202 (41.4)	851 (29.3)	2906

Note: (i) Figures within brackets are percentages

(ii) Percentages indicated in Column (2),(3) & (4) are w.r.t. figures in column (5)

(iii) Percentages indicated in column (5) against subjects are w.r.t. figures against the broad subject groups.

*Distribution of Ph.D scholars showing linkage of Ph.d with
employment by subject groups for males and females separately*

Male Scholars

<i>Subject group</i>	<i>Essential</i>		<i>Desirable</i>		<i>Not needed</i>		<i>TOTAL</i>	
1	2		3		4		5	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Physical Sciences	270	(26.4)	419	(41)	334	(32.6)	1023	(89.7)
2. Technological Sciences	65	(23.1)	136	(48.4)	80	(28.5)	281	(98.3)
3. Agricultural and Vety Sciences	207	(42.2)	187	(38.2)	96	(19.6)	490	(97.2)
4. Medical Sciences	2	(13.3)	4	(26.7)	9	(60.0)	15	(68.2)
5. Bio-Sciences	186	(27.9)	278	(41.7)	203	(30.4)	667	(81.2)
6. Geo-Sciences	30	(30)	35	(35)	35	(35)	100	(96.2)
7. Misc.	5	(29.4)	5	(29.4)	7	(41.2)	17	(58.6)
TOTAL	765	(29.5)	1064	(41)	764	(29.5)	2593	(89.2)

Female Scholars

<i>Subject group</i>	<i>Essential</i>		<i>Desirable</i>		<i>Not needed</i>		<i>TOTAL</i>	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Physical Sciences	26	(22.2)	61	(52.1)	30	(25.6)	117	(10.3)
2. Technological Sciences	2	(40)	2	(40)	1	(20)	5	(1.7)
3. Agricultural and Vety Sciences	3	(21.4)	7	(50.0)	4	(28.6)	14	(2.8)
4. Medical Sciences	1	(14.3)	1	(14.3)	5	(71.4)	7	(31.8)
5. Bio-Sciences	50	(32.5)	61	(39.6)	43	(27.9)	154	(18.8)
6. Geo-Sciences	2	(50)	1	(25)	1	(25)	4	(3.8)
7. Misc.	4	(33.3)	5	(41.7)	3	(25)	12	(41.4)
TOTAL	88	(28.1)	138	(44.1)	87	(27.8)	313	(10.8)

Note : (i) Figures within brackets are percentages

(ii) Percentages indicated in columns (2), (3) & (4) are w.r.t. figures in column (5)

(iii) Percentages indicated in column (5) are w.r.t. the total scholars (both male and female) in the broad subject group.

*Distribution of scholars doing work related wholly and partly or not
related to their field of specialisation by subjects and age-group*

Subjects	Up to 30 years			30-39 years		
	Y	P	N	Y	P	N
1	2	3	4	5	6	7
I. Physical Sciences	25 (44.64)	20 (35.72)	11 (19.64)	350 (50.29)	234 (33.62)	112 (16.09)
1. Physics	3 (27.28)	4 (36.36)	4 (36.36)	77 (48.43)	55 (34.59)	27 (19.98)
2. Nuclear Physics	—	—	—	5 (55.56)	2 (22.22)	2 (22.22)
3. Chemistry	20 (48.78)	16 (39.02)	5 (12.10)	205 (51.90)	139 (35.19)	51 (12.91)
4. Mathematics	1 (33.33)	—	2 (66.67)	47 (42.73)	34 (30.91)	29 (26.36)
5. Statistics	1 (100.00)	—	—	16 (69.57)	4 (17.39)	3 (13.04)
II. Technological Sciences	1 (100.00)	—	—	74 (67.27)	26 (23.64)	10 (9.09)
1. Civil Engg.	—	—	—	14 (77.78)	4 (22.22)	—
2. Mechanical Engg.	—	—	—	12 (70.59)	2 (11.76)	3 (17.65)
3. Electrical Engg.	—	—	—	6 (75.00)	2 (25.00)	—
4. Electronics & Com. Sc.	—	—	—	14 (73.68)	4 (21.05)	1 (5.27)
5. Chemical Engg	1 (100.00)	—	—	11 (55.00)	6 (30.00)	3 (15.00)
6. Chemical Technology	—	—	—	6 (54.55)	3 (27.27)	2 (18.18)
7. Engg. (Others)	—	—	—	11 (64.71)	5 (29.41)	1 (5.88)

ANNEXURE XXVII Contd

	40-49 years Above			50 years & above			All ages		
	Y	P	N	Y	P	N	Y	P	N
	8	9	10	11	12	13	14	15	16
I. Physical Sciences	185	116	73	42	18	11	602	384	211
	(49.47)	(31.02)	(19.51)	(59.15)	(25.35)	(15.50)	(50.29)	(32.08)	(17.63)
1. Physics	54	45	28	12	6	—	146	106	63
	(42.52)	(35.43)	(22.05)	(66.67)	(33.33)		(46.35)	(33.65)	(20.00)
2. Nuclear Physics	1	2	2	1	1	—	7	5	4
	(20.00)	(40.00)	(40.00)	(50.00)	(50.00)		(43.75)	(31.25)	(25.00)
3. Chemistry	105	41	19	17	4	3	347	200	78
	(63.64)	(24.85)	(11.51)	(70.83)	(16.67)	(12.50)	(55.52)	(32.00)	(12.48)
4. Mathematics	18	24	23	8	6	8	74	64	62
	(27.69)	(36.92)	(35.39)	(36.36)	(27.28)	(36.36)	(37.00)	(32.00)	(31.00)
5. Statistics	7	4	1	4	1	—	28	9	4
	(73.72)	(24.36)	(1.92)	(51.52)	(30.30)		(69.00)	(24.67)	(6.33)
II. Technological Sciences	115	38	3	17	10	6	207	74	19
	(73.72)	(24.36)	(1.92)	(51.52)	(30.30)	(18.18)	(69.00)	(24.67)	(6.33)
1. Civil Engg.	13	12	—	6	5	3	53	21	3
	(52.00)	(48.00)		(42.86)	(35.71)	(21.43)	(68.83)	(27.27)	(3.90)
2. Mechanical Engg.	30	11	1	3	2	1	45	15	5
	(71.43)	(26.19)	(2.38)	(50.00)	(33.33)	(16.67)	(69.23)	(23.08)	(7.69)
3. Electrical Engg.	18	8	2	3	—	—	27	10	2
	(64.29)	(28.57)	(7.14)	(100.00)	—	—	(69.23)	(25.64)	(5.13)
4. Electronics & Com. Sc.	6	2	—	—	1	1	20	7	2
	(75.00)	(25.00)			(50.00)	(50.00)	(68.97)	(24.14)	(6.89)
5. Chemical Engg.	10	—	—	—	1	—	22	7	3
	(100.00)				(100.00)		(68.75)	(21.88)	(9.37)
6. Chemical Technology	3	—	—	1	—	—	10	3	2
	(100.00)			(100.00)			(66.67)	(20.00)	(13.33)
7. Engg. (Others)	15	5	—	4	1	1	30	11	2
	(75.00)	(25.00)		(66.66)	(16.67)	(16.67)	(69.77)	(25.28)	(4.65)

ANNEXURE XXVII Contd

1	2	3	4	5	6	7
III. Ag. & Vety Sciences	8 (61.5)	2 (15.4)	3 (23.1)	154 (63.4)	73 (30.0)	16 (6.6)
1. Agriculture	8 (61.5)	2 (15.4)	3 (23.1)	143 (62.7)	70 (30.7)	15 (6.6)
2. Vety. Sciences	—	—	—	11 (73.33)	3 (20.0)	1 (6.67)
IV. Medical Sciences	—	—	—	3 (60.0)	2 (40.0)	—
V. Bio-Sciences	28 (58.33)	7 (14.58)	13 (27.09)	278 (52.65)	157 (29.73)	93 (17.62)
1. Botany	15 (55.56)	3 (11.11)	9 (33.33)	95 (48.22)	63 (31.98)	39 (19.80)
2. Zoology	4 (40.00)	3 (30.00)	3 (30.00)	78 (46.15)	57 (33.73)	34 (20.12)
3. Biology (others)	5 (100.00)	—	—	60 (61.22)	23 (23.47)	15 (15.31)
4. Bio-Chemistry	4 (66.66)	1 (16.67)	1 (16.67)	45 (70.31)	14 (21.88)	5 (7.81)
VI. Geo-Sciences	3 (60.00)	2 (40.00)	—	40 (61.54)	18 (27.69)	7 (10.77)
1. Geology	1 (33.33)	2 (66.67)	—	19 (54.29)	13 (37.14)	3 (8.57)
2. Geography	1 (100.00)	—	—	12 (63.16)	5 (26.32)	2 (10.52)
3. Geo-Physics	1 (100.00)	—	—	9 (81.82)	—	2 (18.18)
VII. Misc.	—	—	—	13 (65.00)	6 (30.00)	1 (5.00)
1. Anthropology	—	—	—	8 (66.67)	4 (33.33)	—
2. Others	—	—	—	5 (62.50)	2 (25.00)	1 (12.50)
Grand Total	65 (52.85)	31 (25.20)	27 (21.95)	912 (54.71)	516 (30.95)	239 (14.34)

ANNEXURE XXVII contd

	8	9	10	11	12	13	14	15	16
III. Agriculture & Vety. Sc.	161 (80.10)	29 (14.43)	11 (5.47)	35 (83.33)	4 (9.52)	3 (7.15)	358 (71.74)	108 (21.65)	33 (6.61)
1. Agriculture	134 (77.91)	27 (15.70)	11 (6.39)	26 (78.79)	4 (12.12)	3 (9.09)	311 (69.73)	103 (23.09)	32 (7.18)
2. Vety. Sciences	27 (93.10)	2 (6.90)	—	9 (100.00)	—	—	47 (88.68)	5 (9.43)	1 (1.89)
IV. Medical Science	5 (62.50)	3 (37.50)	—	8 (88.89)	1 (11.11)	—	16 (72.73)	6 (27.27)	—
V. Bio-Sciences	121 (53.07)	76 (33.33)	31 (13.60)	34 (65.38)	12 (23.08)	6 (11.54)	461 (53.86)	252 (29.44)	143 (16.70)
1. Botany	33 (43.42)	31 (40.79)	12 (15.79)	12 (66.67)	4 (22.22)	2 (11.11)	155 (48.74)	101 (31.76)	62 (19.50)
2. Zoology	33 (43.42)	30 (39.47)	13 (17.11)	8 (57.14)	4 (28.57)	2 (14.29)	123 (45.72)	94 (34.95)	52 (19.33)
3. Biology (others)	40 (75.47)	9 (16.98)	4 (7.55)	12 (70.59)	3 (17.65)	2 (11.76)	117 (67.63)	35 (20.23)	21 (12.14)
4. Bio-Chemistry	15 (65.22)	6 (26.09)	2 (8.69)	2 (66.67)	1 (33.33)	—	66 (68.75)	22 (22.92)	8 (8.33)
VI. Geo-Sciences	25 (73.33)	7 (20.59)	2 (5.88)	6 (60.00)	3 (30.00)	1 (10.00)	74 (64.91)	30 (26.32)	10 (8.77)
1. Geology	16 (76.19)	4 (19.05)	1 (4.76)	5 (83.33)	—	1 (16.67)	41 (63.08)	19 (29.33)	5 (7.69)
2. Geography	4 (57.14)	3 (42.86)	—	1 (25.00)	3 (75.00)	—	18 (58.06)	11 (35.48)	2 (6.46)
3. Geo-Physics	5 (83.33)	—	1 (16.67)	—	—	—	15 (83.33)	—	3 (16.67)
VII. Misc.	4 (66.66)	1 (16.67)	1 (16.67)	6 (75.00)	2 (25.00)	—	23 (67.65)	9 (26.47)	2 (5.88)
1. Anthropology	2 (66.67)	—	1 (33.33)	2 (100.00)	—	—	12 (70.59)	4 (23.53)	1 (5.88)
2. Others	2 (66.67)	1 (33.33)	—	4 (66.67)	2 (33.33)	—	11 (64.71)	5 (29.41)	1 (5.88)
Grand Total	616 (61.17)	270 (26.81)	121 (12.02)	148 (65.78)	50 (22.22)	27 (12.00)	1741 (57.61)	863 (28.56)	418 (13.83)

Note: (i) Y : Yes : P : Partially : N : No Wholly
(ii) Figures in brackets () are percentage.

Distribution of Male Scholars doing work related wholly and partly or not related to their field of specialisation by age-groups and broad subject groups

Subjects	Up to 30 years			30-39 years		
	Y	P	N	Y	P	N
1	2	3	4	5	6	7
1. Physical Sciences	2 (22.22)	4 (44.45)	3 (33.33)	72 (51.06)	44 (31.21)	25 (17.63)
2. Technological Sciences	1 (100.00)	—	—	72 (67.29)	25 (23.26)	10 (9.35)
3. Agl. & Vety Sciences	6 (66.7)	2 (22.2)	1 (11.1)	149 (63.9)	69 (29.6)	15 (6.4)
4. Medical Sciences	—	—	—	2 (50.0)	2 (50.0)	—
5. Bio-Sciences	24 (61.54)	4 (10.26)	11 (28.20)	221 (53.12)	122 (29.33)	73 (17.55)
6. Geo-Sciences	3 (60.00)	2 (40.00)	—	38 (61.29)	17 (27.42)	7 (11.29)
7. Misc.	—	—	—	8 (61.54)	4 (30.77)	1 (7.69)
Total	55 (56.12)	24 (24.49)	19 (19.39)	807 (56.08)	434 (30.16)	198 (13.76)

ANNEXURE XXVIII Contd

	40-49 years			Above 50 years			All Ages		
	Y	P	N	Y	P	N	Y	P	N
	8	9	10	11	12	13	14	15	16
1. Physical Sciences	50 (40.98)	44 (36.07)	28 (22.95)	11 (64.71)	6 (35.29)	—	135 (46.71)	94 (32.53)	60 (20.76)
2. Technological Sciences	114 (73.55)	38 (24.52)	3 (1.93)	17 (51.52)	10 (30.30)	6 (18.18)	204 (68.92)	73 (24.66)	19 (6.42)
3. Agriculture & Vety. Sc.	161 (80.1)	29 (14.4)	11 (5.5)	35 (83.4)	4 (9.5)	3 (7.1)	351 (72.4)	104 (21.4)	30 (6.2)
4. Medical Sciences	2 (50.0)	2 (50.0)	—	6 (85.7)	1 (14.3)	—	10 (66.7)	5 (33.3)	—
5. Bio Sciences	109 (54.50)	64 (32.00)	27 (13.50)	32 (68.09)	9 (19.15)	6 (12.76)	386 (62.06)	119 (19.13)	117 (18.81)
6. Geo Sciences	24 (75.00)	6 (18.75)	2 (6.25)	6 (60.00)	3 (30.00)	1 (10.00)	71 (65.14)	28 (25.69)	10 (9.17)
7. Misc.	2 (100.00)	—	—	5 (71.43)	2 (28.57)	—	15 (68.18)	6 (27.27)	1 (4.55)
Total	586 (61.75)	248 (26.13)	115 (12.12)	142 (66.36)	45 (21.03)	27 (12.61)	1590 (58.89)	747 (27.67)	363 (13.44)

Note: (i) Y : Yes, Wholly P : Partially N : No

(ii) Figures within brackets are percentages w.r.t. number of scholars in the age group in the subject/group.

Distribution of female scholars doing work related wholly or partly or not related to their field of specialisation by age groups and broad subject groups

Subjects	Up to 30 years			30-39 years		
	Y	P	N	Y	P	N
1	2	3	4	5	6	7
1. Physical Sciences	4 (33.33)	4 (33.33)	4 (33.34)	33 (35.87)	39 (42.39)	20 (21.74)
2. Technological Sciences	—	—	—	2 (66.67)	1 (33.33)	—
3. Agl & Vety Sciences	2 (50.0)	—	2 (50.0)	5 (50.0)	4 (40.0)	1 (10.0)
4. Medical Sciences	—	—	—	1 (100.0)	—	—
5. Bio-Sciences	4 (44.45)	3 (33.33)	2 (22.22)	57 (50.89)	35 (31.25)	20 (17.86)
6. Geo-Sciences	—	—	—	2 (66.67)	1 (33.33)	—
7. Misc.	—	—	—	5 (71.43)	2 (28.57)	—
Total	10 (40.00)	7 (28.00)	8 (32.00)	105 (46.05)	82 (35.97)	41 (17.98)

ANNEXURE-XXVIII Contd

	40-49 years			Above 50 years			All Ages		
	Y	P	N	Y	P	N	Y	P	N
	8	9	10	11	12	13	14	15	16
1. Physical Sciences	11 (57.89)	7 (36.84)	1 (5.27)	1 (33.33)	2 (66.67)	—	49 (38.89)	52 (41.27)	25 (19.84)
2. Technological Sciences	1 (100.0)	—	—	—	—	—	3 (75.00)	1 (25.00)	—
3. Agl & Vety Sciences	—	—	—	—	—	—	7 (50.0)	4 (28.6)	3 (21.4)
4. Medical Sciences	3 (75.0)	1 (25.0)	—	2 (100.0)	—	—	6 (85.7)	1 (14.3)	—
5. Bio-Sciences	12 (42.86)	12 (42.86)	4 (14.28)	2 (40.00)	3 (60.00)	—	75 (48.70)	53 (34.42)	26 (16.88)
6. Geo-Sciences	1 (50.00)	1 (50.00)	—	—	—	—	3 (60.00)	2 (40.00)	—
7. Misc.	2 (50.00)	1 (25.00)	1 (25.00)	1 (100.00)	—	—	8 (66.67)	3 (25.00)	1 (8.33)
Total	30 (51.72)	22 (37.93)	6 (10.35)	6 (54.55)	5 (45.45)	—	151 (46.89)	116 (36.03)	55 (17.08)

Note: i) Y : Yes, wholly, P : Partially, N : No

ii) Figures within brackets are percentages w.r.t. number of scholars in the age group in the subject group.

ANNEXURE XXIX

Distribution of Ph.D scholars reporting satisfaction with their pay grades by age groups and by broad subject group/subjects

Subject Group/Subject	Age Groups										
	Below 30 years		30-39 years		40-49 years		50 & above		All Ages		
	Y	N	Y	N	Y	N	Y	N	Y	N	T
1	2	3	4	5	6	7	8	9	10	11	12
I. Physical Sciences	25	35	319	377	160	215	40	29	544	656	1200
									(45.3)	(54.7)	(100.0)
1. Physics	3	8	67	90	50	77	7	11	127	186	313
									(40.6)	(59.4)	(100.0)
2. Nuclear Physics	—	—	5	4	1	4	1	1	7	9	16
									(43.8)	(56.2)	(100.0)
3. Chemistry	21	23	184	214	76	88	17	4	298	329	627
									(47.5)	(52.5)	(100.0)
4. Mathematics	1	3	50	58	30	37	10	13	91	111	202
									(45.0)	(55.0)	(100.0)
5. Statistics	—	1	13	11	3	9	5	—	21	21	42
									(50.0)	(50.0)	(100.0)
II. Technological Sciences	1	1	55	56	69	86	14	19	139	161	300
									(46.3)	(53.7)	(100.0)
1. Civil Engg.	—	—	7	10	16	29	7	7	30	46	76
									(39.5)	(60.5)	(100.0)
2. Mechanical Engg.	—	—	6	11	22	20	4	3	32	34	66
									(48.5)	(51.5)	(100.0)
3. Electrical Engg.	—	—	6	2	12	15	—	3	20	18	38
									(52.6)	(47.4)	(100.0)
4. Electronics & Comp. Sc.	—	—	14	6	4	4	—	1	19	10	29
									(65.5)	(34.5)	(100.0)
5. Chemical Engg.	1	—	7	13	6	4	1	—	15	17	32
									(46.9)	(53.1)	(100.0)
6. Chemical Tech.	—	—	6	6	2	1	—	1	8	8	16
									(50.0)	(50.0)	(100.0)
7. Engg. (others)	—	—	9	8	7	13	2	4	18	25	43
									(41.9)	(58.1)	(100.0)
III. Agl & Vety Sciences	5	6	149	94	134	68	26	17	314	185	499
									(62.9)	(37.1)	(100.0)
1. Agriculture	5	6	138	90	113	60	19	14	275	170	445
									(61.8)	(38.2)	(100.0)
2. Vety. Science	—	—	11	4	21	8	7	3	39	15	54
									(72.2)	(27.8)	(100.0)
IV. Medical Sciences	—	—	3	2	3	5	8	1	14	8	22
									(63.6)	(36.4)	(100.0)

V. Bio-Sciences	22	24	237	292	96	127	25	29	380	472	852
									(44.6)	(55.4)	(100.0)
1. Botany	13	14	83	113	39	37	7	11	142	175	317
									(44.8)	(55.2)	(100.0)
2. Zoology	3	7	68	101	23	46	7	8	101	162	263
									(38.4)	(61.6)	(100.0)
3. Biology	3	2	55	44	23	29	8	10	89	85	174
									(51.1)	(48.9)	(100.0)
4. Bio Chemistry	3	1	31	36	11	13	3	—	48	50	98
									(49.0)	(51.0)	(100.0)
VI. Geo.Sciences	3	1	33	32	18	16	4	6	58	55	113
									(51.3)	(48.7)	(100.0)
1. Geology	2	—	18	17	11	10	3	3	34	30	64
									(53.1)	(46.9)	(100.0)
2. Geography	—	1	11	8	5	2	1	3	17	14	31
									(54.8)	(45.2)	(100.0)
3. Geo. Phy.	1	—	4	7	2	4	—	T	7	11	18
									(38.9)	(61.1)	(100.0)
VII.Misc.	—	—	11	10	3	3	2	6	16	19	35
									(45.7)	(54.3)	(100.0)
1. Anthropology	—	—	8	5	1	2	—	2	9	9	18
									(50.0)	(50.0)	(100.0)
2. Others	—	—	3	5	2	1	2	4	7	10	17
									(41.2)	(58.8)	(100.0)
Grand Total	56	66	807	865	483	518	119	107	1465	1556	3021
	(45.9)	(54.1)	(48.3)	(51.7)	(48.3)	(51.7)	(52.7)	(47.3)	(48.5)	(51.5)	(100.0)

Note: i) Y : Yes, Satisfied

N : No

T : Total

ii) Figures within brackets are percentages.

Distribution of Ph.D scholars reporting satisfaction with their pay & grades by age groups and broad subject groups for male and female separately.

Subject Group/Subject	Male Scholars										
	Below 30 years		30-39 years		40-49 years		50 & above		All Ages		
	Y	N	Y	N	Y	N	Y	N	Y	N	T
1	2	3	4	5	6	7	8	9	10	11	12
1. Physical Sciences	18 (36.7)	31 (63.3)	282 (46.6)	324 (53.4)	150 (42.4)	204 (57.6)	38 (57.6)	28 (42.4)	489 (45.4)	587 (54.6)	1076 (100.0)
2. Technological Sciences	1 (100.0)	— (0.0)	52 (48.6)	55 (51.4)	68 (44.2)	86 (55.8)	14 (42.4)	19 (57.6)	135 (45.8)	160 (54.2)	295 (100.0)
3. Agl and Vety Sciences	3 (42.9)	4 (57.1)	143 (61.4)	90 (38.6)	134 (66.3)	68 (33.7)	26 (60.5)	17 (39.5)	306 (63.1)	179 (36.9)	485 (100.0)
4. Medical Sciences	—	—	3 (75.0)	1 (25.0)	2 (50.0)	2 (50.0)	6 (85.7)	1 (14.3)	11 (73.3)	4 (26.7)	15 (100.0)
5. Bio. Science	17 (45.9)	20 (54.1)	188 (45.1)	229 (54.9)	84 (43.3)	110 (56.7)	21 (42.9)	28 (57.1)	310 (44.5)	387 (55.5)	697 (100.0)
6. Geo. Science	3 (75.0)	1 (25.0)	32 (51.6)	30 (48.4)	17 (53.1)	15 (46.9)	4 (40.0)	6 (60.0)	56 (51.9)	52 (48.1)	108 (100.0)
7. Misc.	— (0.0)	— (0.0)	6 (42.9)	8 (57.1)	1 (50.0)	1 (50.0)	1 (14.3)	6 (85.7)	8 (34.8)	15 (65.2)	23 (100.0)
Total	42 (42.9)	56 (57.1)	707 (49.0)	737 (51.0)	456 (48.4)	486 (51.6)	110 (51.2)	105 (48.8)	1315 (48.7)	1384 (51.3)	2699 (100.0)
Female Scholars											
1. Physical Science	7 (63.6)	4 (36.4)	36 (40.4)	53 (59.6)	10 (47.6)	11 (52.4)	2 (66.7)	1 (33.3)	55 (44.4)	69 (55.6)	124 (100.0)
2. Technological Science	— (0.0)	— (0.0)	3 (75.0)	1 (25.0)	1 (100.0)	— (0.0)	— (0.0)	— (0.0)	4 (80.0)	1 (20.0)	5 (100.0)
3. Agl & Vety Sciences	2 (50.0)	2 (50.0)	6 (60.0)	4 (40.0)	—	—	—	—	8 (57.1)	6 (42.9)	14 (100.0)
4. Medical Sciences	—	—	—	1 (100.0)	1 (25.0)	3 (75.0)	2 (100.0)	—	3 (42.9)	4 (57.1)	7 (100.0)
5. Bio. Science	5 (55.6)	4 (44.4)	49 (43.0)	65 (57.0)	12 (44.4)	15 (55.6)	4 (80.0)	1 (20.0)	70 (45.2)	85 (54.8)	155 (100.0)
6. Geo. Science	—	—	1 (33.3)	2 (66.7)	1 (50.0)	1 (50.0)	—	—	2 (40.0)	3 (60.0)	5 (100.0)
7. Misc.	—	—	5 (71.4)	2 (28.6)	2 (50.0)	2 (50.0)	1 (100.0)	—	8 (66.7)	4 (33.3)	12 (100.0)
Total	14 (58.3)	10 (41.7)	100 (43.9)	128 (56.1)	27 (45.8)	32 (54.2)	9 (81.8)	2 (18.2)	150 (46.6)	172 (53.4)	322 (100.0)

Note: i) Y: Yes, satisfied
N: No
T: Total

ii) Figures within brackets are percentages in the respective age-groups.

Distribution of Ph.D Scholars sustaining interest in research work by age groups and broad subject group/subject.

Subject Group/Subject	Age Group (in years)											
	Below 30 years		30-39 years		40-49 years		50 & above		All Ages			
	Y	N	Y	N	Y	N	Y	N	Y	N	T	
1	2	3	4	5	6	7	8	9	10	11	12	
I. Physical Sciences	41	7	432	246	211	149	41	25	725	437	1162	
									(62.4)	(37.6)	(100.0)	
1. Physics	10	—	107	40	80	42	13	4	210	86	296	
									(70.9)	(29.1)	(100.0)	
2. Nuclear Physics	—	—	6	3	4	1	2	—	12	4	16	
									(75.0)	(25.0)	(100.0)	
3. Chemistry	28	15	256	147	94	66	14	8	392	236	628	
									(62.4)	(37.6)	(100.0)	
4. Mathematics	2	2	48	51	25	37	10	12	85	102	187	
									(45.5)	(54.5)	(100.0)	
5. Statistics	1	—	15	5	8	3	2	1	26	9	35	
									(74.3)	(25.7)	(100.0)	
II. Technological Sciences	2	—	75	37	95	58	17	15	189	110	299	
									(63.2)	(36.8)	(100.0)	
1. Civil Engg.	—	—	11	7	22	21	7	7	40	35	75	
									(53.3)	(46.7)	(100.0)	
2. Mechanical Engg.	—	—	13	5	30	12	3	4	46	21	67	
									(68.7)	(31.3)	(100.0)	
3. Electrical Engg.	—	—	3	5	20	8	2	1	25	14	39	
									(64.1)	(35.9)	(100.0)	
4. Electronics & Computer Sc.	—	—	15	5	2	6	—	1	17	12	29	
									(58.6)	(41.4)	(100.0)	
5. Chemical Engg.	1	—	12	7	7	3	1	—	21	10	31	
									(67.7)	(32.3)	(100.0)	
6. Chemical Tech.	1	—	8	4	1	2	1	—	11	6	17	
									(64.7)	(35.3)	(100.0)	
7. Engg. (Others)	—	—	131	4	13	6	3	2	29	12	41	
									(70.7)	(29.3)	(100.0)	
III. Agriculture & Vety. Science	6	3	91	74	100	52	23	10	220	139	359	
									(61.28)	(38.72)	(100.0)	
1. Agriculture & Vety. Science	6	3	83	67	83	39	16	6	188	115	303	
									(62.0)	(38.0)	(100.0)	
2. Vety. Science	—	—	8	7	17	13	7	4	32	24	56	
									(57.1)	(42.9)	(100.0)	
IV. Medical Sciences	—	—	5	—	6	2	6	4	17	6	23	
									(73.9)	(26.1)	(100.0)	

V. Bio-Sciences	44	11	404	144	140	79	34	17	622	251	873
									(71.2)	(28.8)	(100.0)
1. Botany	23	9	148	64	44	34	10	8	225	115	340
									(66.2)	(33.8)	(100.0)
2. Zoology	10	1	135	41	45	25	10	5	200	72	272
									(73.5)	(26.5)	(100.0)
3. Biology (others)	6	—	69	22	34	13	13	2	122	37	159
									(76.7)	(23.3)	(100.0)
4. Bio-Chemistry	5	1	52	17	17	7	1	2	75	27	102
									(73.5)	(26.5)	(100.0)
VI. Geo-Sciences	3	2	47	23	23	11	8	3	81	39	120
									(67.5)	(32.5)	(100.0)
1. Geology	1	2	23	14	15	6	6	1	45	23	68
									(66.2)	(33.8)	(100.0)
2. Geography	1	—	14	7	5	2	2	2	22	11	33
									(66.7)	(33.3)	(100.0)
3. Geophysics	1	—	10	2	3	3	—	—	14	5	19
									(73.7)	(26.3)	(100.0)
VII. Misc.	—	—	8	8	4	2	6	2	18	12	30
									(60.0)	(40.0)	(100.0)
1. Anthropology	—	—	5	3	2	1	2	—	9	4	13
									(69.2)	(30.8)	(100.0)
2. Others	—	—	3	5	2	1	4	2	9	8	17
									(52.9)	(47.1)	(100.0)
Grand Total	96	33	1062	532	579	353	135	76	1872	994	2866
	(74.4)	(25.6)	(66.6)	(33.4)	(62.1)	(37.9)	(64.0)	(36.0)	(65.3)	(34.7)	(100.0)

Note: i) Y: Yes, Sustained Interest
N: No
T: Total
ii) Figures within brackets are percentages.

Distribution of Ph.D Scholars sustaining interest in research work by age/groups and broad subject group for males and females separately.

Males

Subject Group/Subject	Age Group (in years)										
	Below 30 years		30-39 years		40-49 years		50 & above		All Ages		
	Y	N	Y	N	Y	N	Y	N	Y	N	T
I	2	3	4	5	6	7	8	9	10	11	12
I. Physical Sciences	34 (73.9)	12 (26.1)	384 (65.3)	204 (34.7)	202 (59.1)	140 (40.9)	38 (60.3)	25 (39.7)	658 (63.3)	381 (36.7)	1039 (100.0)
II. Technological Sciences	1 (100.0)	— (0.0)	72 (66.1)	37 (33.9)	94 (61.8)	58 (38.2)	17 (53.1)	15 (46.9)	184 (62.6)	110 (37.4)	294 (100.0)
III. Agricultural & Vety. Sciences	5 (71.4)	2 (28.6)	85 (54.5)	71 (45.5)	100 (65.8)	52 (34.2)	23 (69.7)	10 (30.3)	213 (61.2)	135 (38.8)	348 (100.0)
IV. Medical Sciences	—	—	4 (100.0)	—	3 (75.0)	1 (25.0)	4 (50.0)	4 (50.0)	11 (68.7)	5 (31.3)	16 (100.0)
V. Bio-Sciences	38 (90.5)	4 (9.5)	317 (76.6)	97 (23.4)	126 (66.7)	63 (33.3)	32 (69.6)	14 (30.4)	513 (74.2)	178 (25.8)	691 (100.0)
VI. Geo-Sciences	3 (60.0)	2 (40.0)	44 (67.7)	21 (32.3)	21 (65.6)	11 (34.4)	8 (72.7)	3 (27.3)	76 (67.3)	37 (32.7)	113 (100.0)
VII. Misc.	— (0.0)	— (0.0)	7 (58.3)	5 (41.7)	2 (100.0)	— (0.0)	5 (71.4)	2 (28.6)	14 (66.7)	7 (33.3)	21 (100.0)
Total	81 (80.2)	20 (19.8)	913 (67.7)	435 (32.3)	548 (62.8)	325 (37.2)	127 (63.5)	73 (36.5)	1669 (66.2)	853 (33.8)	2522 (100.0)
Females											
I. Physical Sciences	7 (58.3)	5 (41.7)	48 (53.3)	42 (46.7)	9 (50.0)	9 (50.0)	3 (100.0)	—	67 (54.5)	56 (45.5)	123 (100.0)
II. Technological Sciences	1 (100.0)	— (0.0)	3 (100.0)	— (0.0)	1 (100.0)	— (0.0)	— (0.0)	— (0.0)	5 (100.0)	—	5 (100.0)
III. Agricultural & Vety. Sciences	1 (50.0)	1 (50.0)	6 (66.7)	3 (33.3)	—	—	—	—	7 (63.7)	4 (36.3)	11 (100.0)
IV. Medical Sciences	—	—	1 (100.0)	—	3 (75.0)	1 (25.0)	2 (100.0)	—	6 (85.7)	1 (14.3)	7 (100.0)
V. Bio-Sciences	6 (46.2)	7 (53.8)	87 (64.9)	47 (35.1)	14 (46.7)	16 (53.3)	2 (40.0)	3 (60.0)	109 (59.9)	73 (40.1)	182 (100.0)
VI. Geo-Sciences	— (0.0)	— (0.0)	3 (60.0)	2 (40.0)	2 (100.0)	— (0.0)	— (0.0)	— (0.0)	5 (71.4)	2 (28.6)	7 (100.0)
VII. Misc.	— (0.0)	— (0.0)	1 (25.0)	3 (75.0)	2 (50.0)	2 (50.0)	1 (100.0)	— (0.0)	4 (44.4)	5 (55.6)	9 (100.0)
Total	15 (53.6)	13 (46.4)	149 (60.6)	97 (39.4)	31 (52.5)	28 (47.5)	8 (72.7)	3 (27.3)	203 (39.0)	141 (41.0)	344 (100.0)

Note: i) Y: Yes, Sustained Interest
N: No

ii) Figures within brackets are percentages in the respective age-groups.

Number of Research Papers Written by Scholars Before and After the Award of Ph.D. by Sex, Subjects and Length of Service put in by Scholars

Subject Groups & Subject	Total/Number/Average	Upto 5 years			6-10 years			Length of Service			11-20 years			Above 20 years			Total											
		M	F	T	M	F	T	1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16	17	18	19	20
I. Physical Sciences																												
Total	1131	832/1131	102/102	934/1233	909/1066	102/76	1011/1142	1497/1379	138/171	1635/1550	65/32	1415/1180	4588/407	4995/5105														
Number	234	34	260	236	28	264	340	25	365	222	10	232	1032	97	1129													
Average	4/5	3/3	3/5	4/5	4/3	4/4	4/4	6/7	4/4	6/5	7/3	6/5	4/5	4/4	4/5													
Physics																												
Total	351	225/351	40/23	265/374	307/433	35/27	342/460	628/573	54/43	682/616	-	396/431	1556/1788	129/1881														
Number	49	11	60	55	6	61	106	8	114	68	-	68	278	25	303													
Average	5/7	4/2	4/6	6/8	6/5	6/6	6/6	6/5	7/5	6/5	6/6	6/6	6/6	5/4	6/6													
Nuclear Physics																												
Total	-	-	-	10/8	7/2	17/10	27/34	-	27/34	33/27	-	33/27	70/59	7/2	77/71													
Number	-	-	-	2	1	3	8	-	8	7	-	7	17	1	18													
Average	-	-	-	5/4	7/2	6/3	3/4	-	3/4	5/4	-	5/4	4/4	7/2	4/4													
Chemistry																												
Total	608	454/608	45/59	499/667	477/536	45/43	522/579	612/589	58/104	670/693	39/29	786/585	2290/235	2477/2524														
Number	140	19	159	148	16	164	171	11	182	102	6	108	561	613														
Average	3/4	2/3	3/4	3/4	2/3	3/4	4/3	4/3	5/9	4/4	7/5	7/5	4/4	4/5														
Total	146	141/146	12/10	153/156	92/73	107/77	173/127	23/20	196/147	118/93	21/3	139/96	524/439	71/37	595/476													
Mathematics																												
Number	38	3	41	25	5	30	45	5	50	37	3	40	145	161														
Average	4/4	4/3	4/4	4/3	-	4/3	4/3	5/4	4/3	3/3	7/1	3/2	4/3	4/2	4/3													
Statistics																												
Total	12/26	5/10	17/36	23/16	-	23/16	51/56	3/4	60/60	56/41	5/-	61/41	148/139	13/14	161/153													
Number	7	1	8	6	-	6	10	1	11	8	1	9	31	34														
Average	2/4	5/10	2/5	4/3	-	4/3	6/6	3/4	5/5	7/5	5/-	7/5	5/4	4/5	5/5													

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
II. Technological Sciences																	
Total	123/113	2/2	125/115	213/265	-	213/265	463/505	2/11	465/516	676/598	2/-	678/598	1475/1481	6/13	1481/1494		
Number	31	2	33	50	-	50	100	1	101	111	1	112	292	4	296		
Average	4/4	1/1	4/3	4/5	-	4/5	5/5	2/11	5/5	6/5	2/-	6/5	5/5	2/3	5/5		
Civil Engineering																	
Total	20/12	-	20/12	30/32	-	30/32	135/138	-	135/138	-	188/190	188/190	373/372	-	373/372		
Number	5	-	5	9	-	9	22	-	22	36	-	36	72	-	72		
Average	4/2	-	4/2	3/4	-	3/4	6/6	-	6/6	5/5	-	5/5	5/5	-	5/5		
Electrical Engineering																	
Total	3/-	-	3/-	29/27	-	29/27	78/82	-	78/82	93/46	2/-	95/46	203/155	2/-	205/155		
Number	1	-	1	6	-	6	16	-	16	18	1	19	41	1	42		
Average	3/	-	3/-	5/5	-	5/5	5/5	-	5/5	5/3	2/-	5/2	5/4	2/-	5/4		
Chemical Engineering																	
Total	48/59	-	48/59	30/48	-	30/48	27/30	-	27/30	51/50	-	51/50	156/187	-	156/187		
Number	9	-	9	8	-	8	9	-	9	5	-	5	31	-	31		
Average	5/7	-	5/7	4/6	-	4/6	3/3	-	3/3	10/10	-	10/10	5/6	-	5/6		
Electronics & Computer Science																	
Total	16/12	2/2	18/14	18/13	-	18/13	48/62	-	48/62	33/34	-	33/34	115/121	2/2	117/123		
Number	6	2	8	4	-	4	12	-	12	4	-	4	26	2	28		
Average	3/2	1/1	2/2	5/3	-	5/3	4/5	-	4/5	8/9	-	8/9	4/5	1/1	4/4		
Chemical Technology & Pharmacology																	
Total	2/4	-	2/4	38/35	-	38/35	29/86	2/11	31/67	-	-	-	69/95	2/11	71/106		
Number	2	-	2	7	-	7	8	1	9	-	-	-	17	1	18		
Average	1/2	-	1/2	5/5	-	5/5	4/7	2/11	3/7	-	-	-	4/6	2/11	4/6		

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mechanical Engineering and Engineering (Others)																	
Total	34/26	-	34/26	68/110	-	68/110	146/137	-	146/137	-	146/137	311/273	-	311/278	559/551	-	559/551
Number	8	-	8	16	-	16	33	-	33	-	33	48	-	48	105	-	105
Average	4/3	-	4/3	4/7	-	4/7	4/4	-	4/4	-	4/4	6/6	-	6/6	5/5	-	5/5
III. Agriculture & Veterinary Sciences																	
Total	419/399	13/23	432/422	214/326	28/24	242/350	1282/1148	8/24	1282/1148	8/24	1290/1172	650/978	-	650/978	2565/2851	49/71	2614/2922
Number	59	4	63	47	4	51	120	1	120	1	121	63	-	63	289	9	298
Average	7/7	3/6	7/7	5/7	7/6	5/7	11/10	8/24	11/10	8/24	11/10	10/16	-	10/16	9/10	5/8	9/10
Total	366/337	13/23	379/360	144/230	29/24	172/254	1033/866	8/24	1033/866	8/24	1041/890	411/745	-	411/745	1954/2178	49/71	2003/2249
Number	52	4	56	41	4	45	102	1	102	1	103	39	-	39	234	9	243
Average	7/6	3/6	7/6	4/6	7/6	4/6	10/9	8/24	10/9	8/24	10/9	11/19	-	11/19	8/9	5/8	8/9
Total	53/62	-	53/62	70/96	-	70/96	249/282	-	249/282	-	249/282	239/233	-	239/233	611/673	-	611/673
Number	7	-	7	6	-	6	18	-	18	-	18	24	-	24	55	-	55
Average	8/9	-	8/9	12/16	-	12/16	14/16	-	14/16	-	14/16	10/10	-	10/10	11/12	-	11/12
Total	-	34/35	34/35	21/28	9/5	30/33	54/229	32/35	54/229	32/35	86/264	117/34	3/2	120/36	192/291	78/77	270/368
Number	-	2	2	2	1	3	7	2	7	2	9	3	1	4	12	6	18
Average	-	17/17	17/17	11/14	9/5	10/11	8/33	16/18	8/33	16/18	10/29	39/11	3/2	30/9	16/24	13/13	15/20
Total	995/1128	158/183	1157/1311	808/1130	115/133	923/1263	1116/1364	91/119	1116/1364	91/119	1207/1483	925/965	63/69	986/1034	3848/4587	427/504	4275/5091
Number	172	52	224	170	38	208	200	31	200	31	239	117	18	135	667	139	806
Average	6/7	3/4	5/6	5/7	3/4	4/6	5/7	3/4	5/7	3/4	5/6	8/8	4/4	7/8	6/7	3/4	5/6
IV. Medical Sciences																	
V. Bio-Sciences																	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Botany		Total	389/ 448	89/91	478/ 539	287/ 378	33/49	320/ 427	305/ 464	43/26	348/ 490	289/ 401	21/3	310/ 404	1270/ 1691	186/ 169	1456/ 1860
		Number	63	24	87	68	14	82	66	13	79	43	5	48	240	56	296
		Average	6/7	4/4	5/6	4/6	2/4	3/5	5/7	3/2	4/6	6/9	4/-	6/8	5/7	3/3	5/6
Zoology		Total	353/ 314	46/ 65	399/ 379	308/ 376	40/29	348/ 405	364/ 388	16/51	380/ 439	285/ 305	21/32	310/ 337	1314/ 1383	123/ 177	1437/ 1560
		Number	54	14	68	53	11	64	77	8	85	45	6	51	229	39	268
		Average	7/6	3/5	6/6	6/7	4/3	5/6	5/5	2/6	4/5	6/7	4/5	6/7	6/6	3/5	5/6
Bio-Chemistry		Total	39/88	14/15	53/103	88/147	24/34	112/181	119/ 106	32/42	151/ 148	57/ 39	15/ 30	72/69	303/ 380	85/121	388/ 501
		Number	15	10	25	21	9	30	23	10	33	6	5	11	65	34	99
		Average	3/6	1/2	2/4	4/7	3/4	4/6	5/5	3/4	5/4	10/7	3/6	7/6	5/6	3/4	4/5
Biology(Others)		Total	218/ 278	9/12	227/ 290	125/ 229	18/21	143/250	328/406	-	328/ 406	290/ 220	6/4	296/ 224	961/ 1133	33/37	994/ 1170
		Number	40	4	44	28	4	32	42	-	42	23	2	25	133	10	143
		Average	5/7	2/3	5/7	4/8	5/5	4/8	8/10	-	8/10	13/10	3/2	12/9	7/9	3/4	7/8
VI. Geo-Science		Total	72/82	4/13	76/95	128/ 202	-/3	120/ 205	131/ 169	9/1	140/ 170	274/ 162	-	274/ 162	597/ 615	13/17	610/ 632
		Number	23	4	27	26	1	27	31	1	32	23	-	23	103	6	109
		Average	3/4	1/3	3/4	5/8	-/3	4/8	4/5	9/1	4/5	12/7	-	12/7	6/6	2/3	6/6
Geography		Total	54/53	4/10	58/63	15/23	-	15/23	27/23	9/1	36/24	32/8	-	32/8	128/ 107	13/11	141/ 118
		Number	13	3	16	6	-	6	4	1	5	4	-	4	27	4	31
		Average	4/4	1/3	4/4	3/4	-	3/4	7/6	9/1	7/5	8/2	-	8/2	5/4	3/3	5/4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Geology		Total	14/24	-/3	14/27	99/156	-/3	99/159	66/87	-	66/87	200/134	-	200/134	379/401	-/6	379/407
		Number	8	1	9	17	1	18	16	-	16	17	-	17	58	2	60
		Average	2/3	-/3	2/3	6/9	-/3	6/9	4/5	-	4/5	12/8	-	12/8	7/7	-/3	6/7
Geo-Physics		Total	4/5	-	4/5	6/23	-	6/23	38/59	-	38/59	42/20	-	42/20	90/107	-	90/107
		Number	2	-	2	3	-	3	11	-	11	2	-	2	18	-	18
		Average	2/3	-	2/3	2/8	-	2/8	4/5	-	4/5	21/10	-	21/10	5/6	-	5/6
VII. Miscellaneous		Total	1/8	5/13	6/21	7/6	6/9	13/15	25/62	36/28	61/90	63/66	17/4	80/70	96/142	64/54	160/196
		Number	2	1	3	3	2	5	8	5	13	5	2	7	18	10	28
		Average	1/4	5/13	2/7	2/2	3/5	3/3	3/8	7/6	5/7	13/13	8/2	11/10	5/8	6/5	6/7
Anthropology		Total	-/7	5/13	5/20	5/4	1/4	6/8	25/62	12/5	37/67	31/34	-	31/34	61/107	18/22	79/129
		Number	1	1	2	2	1	3	8	2	10	4	-	4	15	4	19
		Average	-/7	5/13	3/10	2/2	1/4	2/3	3/8	6/2	4/7	8/9	-	8/9	4/7	5/6	4/7
Others		Total	1/1	-	1/1	2/2	5/5	7/7	-	24/23	24/23	32/32	11/4	49/36	35/35	46/32	81/67
		Number	1	-	1	1	1	2	-	3	3	1	2	3	3	6	9
		Average	1/1	-	1/1	2/2	5/5	3/3	-	8/8	8/8	32/32	8/2	16/12	12/12	8/5	9/7
All Subjects		Total	2446/2861	318/371	2764/3232	2292/3023	260/250	2552/3273	4568/4856	316/389	4884/5245	4055/3951	150/107	4205/4058	13361/14691	1044/1117	14405/15808
		Number	521	99	620	534	74	608	814	66	880	544	32	576	2413	271	2684
		Average	5/5	3/4	4/5	4/6	4/3	4/5	6/6	5/6	6/6	7/7	5/3	7/7	6/6	4/4	5/6

Annexure XXXIV

Distribution of Projects by funding agency (For selected subjects)

Subjects	U.G.C. Pub. Pvt. Univ. Other				Total	Average duration of Projects	Total Respondents	Persons having Project	Persons not having any Project
	Govt. Deptt.	Orgn.	Orgn.	Institution					
Chemical Engg.	9 (26.5)	2 (5.9)	8 (23.5)	6 (17.7)	34 (100.0)	2.4	32 (100.0)	17 (53.1)	15 (46.9)
Medical Science	3 (8.8)	2 (5.9)	24 (70.6)	-	34 (100.0)	2.1	23 (100.0)	11 (47.8)	12 (52.2)
Chemical Technology	1 (5.3)	-	2 (10.5)	7 (36.8)	19 (100.0)	2.3	18 (100.0)	13 (72.2)	5 (27.8)
Electronics & Computers Science	8 (21.6)	-	15 (40.5)	1 (2.7)	34 (100.0)	2.0	28 (100.0)	17 (60.7)	11 (39.3)
Nuclear Physics	1 (12.5)	2 (25.0)	-	1 (12.5)	8 (100.0)	2.8	18 (100.0)	6 (33.3)	12 (66.7)
Physics	45 (28.8)	46 (29.5)	50 (32.1)	3 (1.9)	156 (100.0)	2.6	307 (100.0)	82 (26.7)	225 (73.3)
Geo-Physics	5 (20.8)	-	9 (37.5)	7 (29.2)	24 (100.0)	3.8	19 (100.0)	12 (63.2)	7 (36.8)
Bio-Chemistry	3 (2.5)	5 (4.2)	38 (31.7)	18 (15.0)	120 (100.0)	2.4	111 (100.0)	61 (55.0)	50 (45.0)
Total	75 (17.4)	57 (13.2)	146 (33.8)	36 (8.3)	432 (100.0)	2.5	556 (100.0)	219 (39.4)	337 (60.6)
Total duration of project(years)	206	174	292	102	132	174			
Ave. duration of projects (years)	2.7	3.1	2.0	2.8	2.9	2.4			

DISTRIBUTION OF PROJECTS BY THEIR DURATION
(FOR SELECTED SUBJECTS)

Subject	1 Year	2 year	3 year	4 years or more	Total	Total Persons engaged	No. of projects per person
Chemical Engg.	10 (29.4)	5 (14.7)	13 (38.2)	6 (17.7)	34 (100.0) (7.9)	17	2.0
Medical Science	17 (50.0)	6 (17.6)	6 (17.7)	5 (14.7)	34 (100.0) (7.9)	11	3.1
Chemical Technology	4 (21.1)	10 (52.6)	Nil	5 (26.3)	19 (100.0) (4.4)	13	1.5
Electronics & Computer Sc.	18 (48.7)	12 (32.4)	2 (5.4)	5 (13.5)	37 (100.0) (8.6)	17	2.2
Nuclear Physics	2 (25.0)	1 (12.5)	4 (50.0)	1 (12.5)	8 (100.0) (1.8)	6	1.3
Physics	63 (40.4)	32 (20.5)	42 (26.9)	19 (12.2)	156 (100.0) (36.1)	82	1.9
Geo Physics	4 (16.7)	8 (33.3)	5 (20.8)	7 (29.2)	24 (100.0) (5.5)	12	2.0
Bio Chemistry	40 (33.3)	36 (30.0)	32 (26.7)	12 (10.0)	120 (100.0) (27.8)	61	2.0
Total	158 (36.5)	110 (25.5)	104 (24.1)	60 (13.9)	432 (100.0) (100.0)	219	2.0

ANNEXURE XXXVI

Distribution of Ph. D scholars having got their patents registered by age groups and broad subject groups/subjects.

Age group (in yrs)

Subject group/ subjects	Below 30		30-39		40-49		50 & above		All ages		
	Y	N	Y	N	Y	N	Y	N	Y	N	T
1	2	3	4	5	6	7	8	9	10	11	12
I. <i>Physical Science</i>	1	59	12	668	4	356	2	63	19	146	1165
	(1.7)	(98.3)	(1.8)	(98.2)	(1.1)	(98.9)	(3.1)	(96.9)	(1.6)	(98.4)	(100.0)
1. Physics	—	10	—	147	2	120	2	15	4	292	296
	(0.0)	(100.0)	(0.0)	(100.0)	(1.6)	(98.4)	(11.8)	(88.2)	(1.4)	(98.6)	(100.0)
2. Nuclear	—	—	—	9	—	5	—	2	—	16	16
Physics	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
3. Chemistry	1	44	12	390	1	159	—	21	14	614	628
	(2.2)	(97.8)	(3.0)	(97.0)	(0.6)	(99.4)	(0.0)	(100.0)	(2.2)	(97.8)	(100.0)
4. Mathematics	—	4	—	102	—	62	—	22	—	190	190
	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
5. Statistics	—	1	—	20	1	10	—	3	1	34	35
	(0.0)	(100.0)	(0.0)	(100.0)	(9.1)	(90.9)	(0.0)	(100.0)	(2.9)	(97.1)	(100.0)

ANNEXURE XXXVI contd

1	2	3	4	5	6	7	8	9	10	11	12
II <i>Technological Sciences</i>	—	2	3	110	4	149	—	33	7	294	301
	(0.0)	(100.0)	(2.7)	(97.3)	(2.6)	(97.4)	(0.0)	(100.0)	(2.3)	(97.7)	(100.0)
1. Civil	—	—	—	18	—	43	—	14	—	75	75
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
2. Mech.	—	—	2	16	1	41	—	7	3	64	67
	(0.0)	(0.0)	(11.1)	(88.9)	(2.4)	(97.6)	(0.0)	(100.0)	(4.5)	(95.5)	(100.0)
3. Electrical	—	—	—	8	—	28	—	3	—	39	39
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
4. Electronics & Comp. Sc.	—	—	—	20	2	6	—	2	2	28	30
	(0.0)	(0.0)	(0.0)	(100.0)	(25.0)	(75.0)	(0.0)	(100.0)	(6.7)	(93.3)	(100.0)
5. Chemical Engg.	—	1	—	20	1	9	—	1	1	31	32
	(0.0)	(100.0)	(0.0)	(100.0)	10.0)	(90.0)	(0.0)	(100.0)	(3.1)	(96.9)	(100.0)
6. Chemical Tech.	—	1	—	12	—	3	—	1	—	17	17
	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
7. Engg. (others)	—	—	1	16	—	19	—	5	1	40	41
	(0.0)	(0.0)	(5.9)	(94.1)	(0.0)	(100.0)	(0.0)	(100.0)	(2.4)	(97.6)	(100.0)

ANNEXURE XXXVI contd

1	2	3	4	5	6	7	8	9	10	11	12
III Agricultural, Vety. Sciences											
	–	9	2	163	4	149	1	32	7	353	360
	(0.0)	(100.0)	(1.2)	(98.8)	(2.6)	(97.4)	(3.0)	(97.0)	(1.9)	(98.1)	(100.0)
1. Agricultural Sciences	–	9	2	148	4	119	–	22	6	298	304
	(0.0)	(100.0)	(1.3)	(98.7)	(3.3)	(96.7)	(0.0)	(100.0)	(2.0)	(98.0)	(100.0)
2. Vety. Science	–	–	–	15	–	30	1	10	1	55	56
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(9.1)	(90.9)	(1.8)	(98.2)	(100.0)
IV Medical Sciences											
	–	–	–	5	–	8	–	10	–	23	23
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
V Bio-Sciences											
	2	52	10	538	4	217	4	47	20	854	874
	(3.7)	(96.3)	(1.8)	(98.2)	(1.8)	(98.2)	(7.8)	(92.2)	(2.3)	(97.7)	(100.0)
1. Botany	–	32	2	213	1	77	3	15	6	337	343
	(0.0)	(100.0)	(0.9)	(99.1)	(1.3)	(98.7)	(16.7)	(83.3)	(1.7)	(98.3)	(100.0)
2. Zoology	–	11	2	171	1	70	–	15	3	267	270
	(0.0)	(100.0)	(1.2)	(98.2)	(1.4)	(98.6)	(0.0)	(100.0)	(1.1)	(98.9)	(100.0)
3. Biology (others)	2	3	3	89	2	46	1	14	8	152	160
	(40.0)	(60.0)	(3.3)	(96.7)	(4.2)	(95.8)	(6.7)	(93.3)	(5.0)	(95.0)	(100.0)
4. Bio-chemistry	–	6	3	65	–	24	–	3	3	98	101
	(0.0)	(100.0)	(4.4)	(95.6)	(0.0)	(100.0)	(0.0)	(100.0)	(3.0)	(97.0)	(100.0)
VI Geo-Sciences											
	–	5	1	69	1	33	–	11	2	118	120
	(0.0)	(100.0)	(1.4)	(98.6)	(2.9)	(97.1)	(0.0)	(100.0)	(1.7)	(98.3)	(100.0)
1. Geology	–	3	–	37	–	21	–	7	–	68	68
	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
2. Geography	–	1	–	21	1	6	–	4	1	32	33
	(0.0)	(100.0)	(0.0)	(100.0)	(14.3)	(85.7)	(0.0)	(100.0)	(3.0)	(97.0)	(100.0)
3. Geo-Physics	–	1	1	11	–	6	–	–	1	18	19
	(0.0)	(100.0)	(8.3)	(91.7)	(0.0)	(100.0)	(0.0)	(0.0)	(5.3)	(94.7)	(100.0)
VII Misc.											
	–	–	–	16	–	6	0	8	0	30	30
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(12.5)	(87.5)	(3.3)	(96.7)	(100.0)
1. Anthropology	–	–	–	8	–	3	0	2	0	13	13
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
2. Others	–	–	–	8	–	3	–	6	–	17	17
	(0.0)	(0.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(0.0)	(100.0)	(100.0)
Grand Total	3	127	28	1569	17	918	7	204	55	2818	2873
	(2.3)	(97.7)	(1.8)	(98.2)	(1.8)	(98.2)	(3.3)	(96.8)	(1.9)	(98.1)	(100.0)

Note: (i) Y: Yes, patent registered, N: No, T: Total

(ii) Figures within brackets are percentages in the respective age-groups.

ANNEXURE XXXVII

Distribution of Ph.D scholars having got their patents registered by age groups and broad subject groups for males and females separately.

Subject group	Male scholars						Age groups (in yrs.)				
	below 30		30-39		40-49		50 & Above		All ages		
	Y	N	Y	N	Y	N	Y	N	Y	N	T
1	2	3	4	5	6	7	8	9	10	11	12
1. Physical Sciences	1 (2.1)	47 (97.9)	12 (2.0)	577 (98.0)	4 (1.2)	338 (98.8)	1 (1.6)	61 (98.4)	18 (1.7)	1023 (98.3)	1041 (100.0)
2. Technological Sciences	— (0.0)	1 (100.0)	3 (2.8)	106 (97.2)	4 (2.6)	148 (97.4)	— (0.0)	33 (100.0)	7 (2.4)	288 (97.6)	295 (100.0)
3. Agricultural & Vety. Sc.	— (0.0)	7 (100.0)	2 (1.3)	154 (98.7)	4 (2.6)	149 (97.4)	1 (3.0)	32 (97.0)	7 (2.0)	342 (98.0)	349 (100.0)
4. Medical Sciences	—	—	—	4 (100.0)	—	4 (100.0)	—	8 (100.0)	—	16 (100.0)	16 (100.0)
5. Bio-sciences	2 (4.9)	30 (95.1)	10 (2.4)	405 (97.6)	4 (2.1)	187 (97.9)	3 (6.5)	43 (93.5)	19 (2.7)	674 (97.3)	693 (100.0)
6. Geo-Sciences	— (0.0)	5 (100.0)	1 (1.5)	64 (98.5)	1 (3.2)	31 (96.8)	— (0.0)	11 (100.0)	2 (1.8)	111 (98.2)	113 (100.0)
7. Misc.	— (0.0)	— (0.0)	— (0.0)	12 (100.0)	— (0.0)	2 (100.0)	1 (14.3)	6 (85.7)	0 (0.0)	21 (100.0)	21 (100.0)
Total	3 (2.9)	99 (97.1)	28 (2.1)	1322 (97.9)	17 (1.9)	859 (98.1)	6 (3.0)	194 (97.0)	53 (2.1)	2475 (97.9)	2528 (100.0)

ANNEXURE XXXVII contd

1	Female scholars										
	2	3	4	5	6	7	8	9	10	11	12
1. Physical Sciences	— (0.0)	12 (100.0)	— (0.0)	91 (100.0)	— (0.0)	18 (100.0)	1 (33.3)	2 (66.7)	1 (0.8)	123 (99.2)	124 (100.0)
2. Technological Sciences	— (0.0)	1 (100.0)	— (0.0)	4 (100.0)	— (0.0)	1 (100.0)	— (0.0)	— (0.0)	— (0.0)	6 (100.0)	6 (100.0)
3. Agricultural & Vety. Sc.	— (0.0)	2 (100.0)	— (0.0)	9 (100.0)	— (0.0)	— (0.0)	— (0.0)	— (0.0)	— (0.0)	11 (100.0)	11 (100.0)
4. Medical Sciences	—	—	—	1 (100.0)	—	4 (100.0)	—	2 (100.0)	—	7 (100.0)	7 (100.0)
5. Bio-Sciences	— (0.0)	13 (100.0)	— (0.0)	133 (100.0)	— (0.0)	30 (100.0)	1 (20.0)	4 (80.0)	1 (0.6)	180 (99.4)	181 (100.0)
6. Geo-Sciences	— (0.0)	— (0.0)	— (0.0)	5 (100.0)	— (0.0)	2 (100.0)	— (0.0)	— (0.0)	— (0.0)	7 (100.0)	7 (100.0)
7. Misc	—	—	—	4 (100.0)	—	4 (100.0)	—	1 (100.0)	—	9 (100.0)	9 (100.0)
Total	— (0.0)	28 (100.0)	— (0.0)	247 (100.0)	— (0.0)	59 (100.0)	2 (18.2)	9 (81.8)	2 (0.6)	343 (99.4)	345 (100.0)

Note: (i) Y: yes patent registered, N: No, T: total
(ii) Figures within brackets are percentages in the respective age groups.

