INFORMATION BULLETIN

for

Admission to Ph.D. Courses

2016-17

POST GRADUATE SCHOOL

INDIAN AGRICULTURAL RESEARCH INSTITUTE

(Deemed University)

NEW DELHI-110 012

(An ISO 9001:2008 Certified Institute)

Post Graduate School

Indian Agricultural Research Institute

New Delhi

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The academic activity at the Institute is regulated by the Academic Council with Director, IARI as its *Chairman* and the Dean as its *Vice-Chairman*. The Academic Council is the competent authority to amend the rules and procedures governing all aspects of post-graduate programmes. All correspondence regarding admission should be addressed to the Registrar, Post Graduate School, Indian Agricultural Research Institute, New Delhi-110 012.

This Information Bulletin should not be treated as a legal document.

Candidates are required to submit their application form online. Before filling the Online Application Form, the candidates are required to get the demand draft of Rs. 1,000/- (for General/OBC category) and Rs. 500/- (for SC/ST/PC category) prepared from any branch of nationalized bank in favour of **Director, IARI, payable at New Delhi** and fill their details in the Online Application Form. For instructions please refer this Information Bulletin.

IMPORTANT DATES

(i)	Last Date for Receipt of Application	:	**March 07, 2016**
(ii)	Last date for Receipt of Applications through Proper Channel and documents submission for online Application Form	:	**March 14, 2016**
(iii)	Download Admit Card	:	**April 20-24, 2016**
(iv)	Entrance Examination	:	**April 24, 2016**
(v)	Download Interview Letter	:	**June 29-July 02, 2016**
(vi)	Interview	:	**July 04, 2016**
(vii)	Announcement of Result	:	**July 08, 2016**
(viii)	Download Final Selection Letter	:	**July 15-July 29, 2016**

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List of Annexures

1. INTRODUCTION

The Indian Agricultural Research Institute (IARI) is India's largest and foremost Institute in the field of research and higher education and training in agricultural sciences. It has served the cause of science and society with distinction through first rate research, generation of appropriate technologies and development of human resources. In fact, the Green Revolution was born in the fields of IARI and our graduates constitute the core of the quality human resource in India's agricultural research and education. The Institute has all along been adjusting and improving its policies, plans and programmes to effectively respond to the needs and opportunities of the nation. During the fifties, the advancement of scientific disciplines constituted the core programme and provided the base for its fast expansion in the 1960's and 1970's in all its three interactive areas, namely, research, education and extension. Besides basic research, applied and commodity research gained great importance resulting in the development of several popular high yielding varieties of almost all major crops and their associated management technologies, which brought about an unprecedented increase in the national food and agricultural production. The main functions of the Institute cover the areas of basic and applied research in the major branches of agricultural sciences; post graduate education at the M.Sc., M.Tech. and Ph.D. levels for which the Institute has been accorded the status of a Deemed University under the University Grants Commission Act of 1956; specialized post graduate training courses; and extension education and transfer of technology in selected areas. The administrative control of the Institute is vested with the Indian Council of Agricultural Research (ICAR), which is an autonomous organization established under the Societies Registration Act, 1860.

The Institute was originally established by the Government of India in 1905 at the village Pusa in north Bihar. After a devastating earthquake in 1934, it was shifted to New Delhi in 1936. That is why it is popularly known as the Pusa Institute. The present campus of the Institute is a self-contained complex spread over an area of about 500 hectares.

The Institute has inherited a great tradition of agricultural research. Since its early days at Pusa, the Institute has been doing pioneering work in various fields of agricultural sciences. The Institute has expanded greatly in its activities, research facilities and scientific personnel in the post-independence years. When the Institute came to New Delhi in 1936 it had five Sections. Today, the Institute's research and educational activities are carried out through a network of 35 Divisions/multi-disciplinary laboratories/Centres of Excellence/units and 8 Regional Stations.

Mandate of the Institute

- To conduct basic, strategic research with a view to understanding the process in all their complexity and to undertake need-based research that lead to crop improvement and sustained agricultural productivity in harmony with the environment.
- To serve as a centre of academic excellence in the area of post graduate education and human resource development in agricultural sciences.
- To provide national leadership in agricultural research, extension, technology assessment and transfer of technologies by developing new concepts and approaches and serve as a national referral point for quality and standards.
- To develop information systems, and add value to information, share the information nationally and internationally and serve as national agriculture library and databases.

The laboratories are equipped on modern lines for conducting research of a high order. Most of the Divisions also have smart classroom facility. The experimental fields which form an integral part of the Institute's campus cover an area of about 296 hectares, of which about 160 hectares are irrigated. The various Divisions of the Institute are manned by a large body of highly trained and experienced

Scientific Staff. The strength of the Post Graduate Faculty of the Institute at present is about 750 in 26 disciplines.

The Institute's Central Library has built-up a collection of 6,00,000 documents, receives more than 5000 scientific serials annually from all over the world, and is regarded as the best agro-biological library in South Asia. The library has over 10500 serial files in 40 languages received from more than 90 countries which form 30% of the total scientific serials available in the country. It has spacious reading halls and a documentation centre. The main hub providing Email-internet connectivity through the Institute is located in the Library, which also offers CD-ROM facility and CeRA through the Local Area Network.

Since its early years, the Institute has flourished as a centre for imparting post graduate training to officers of the State Departments of Agriculture in India, as also to other candidates, so as to equip them for manning superior posts in the fields of research, teaching and extension. In 1923, the training programme was placed on an organized basis as a two-year course of specialized post graduate training in different major fields of agricultural sciences, leading to the Associateship of the Institute (Assoc. IARI). This diploma course, recognized in 1946 as equivalent to the M.Sc. degree of Indian Universities, was replaced by M.Sc. degree in 1958 when the Institute was granted the status of a "Deemed University" under the University Grants Commission Act of 1956 and authorized to award post graduate degrees of Master of Science and Doctor of Philosophy in agricultural sciences. With regard to educational standard and quality, it ranks among the best institutions of post graduate education in the world. A unique feature of the system of instruction at the Institute, which is largely modelled on the course-credit system, is that research, teaching and extension are fully integrated and also that the programme of instruction is broad-based so as to give the student a mastery not only in his/her major field of specialization but also in supporting minor fields. Currently, instruction leading to the post graduate degrees of the Institute is organized in twenty four subjects (disciplines).

So far, 3780 M.Sc., 32 M.Tech. and 4583 Ph.D. students have been awarded degrees including 366 international students. At present, the total number of students is 962 (259 M.Sc., 15 M.Tech. and 688 Ph.D.) which include 41 international students.

The amenities available on the campus include a medical dispensary, two primary schools, two government senior secondary schools- one for boys and the other for girls, the Nehru Experimental Centre, a Shopping Complex, Kendriya Bhandar, a bank, and a post office. The Institute is easily reached, both from Delhi and New Delhi railway stations, by means of city bus/Metro trains. Adjacent to the Institute's campus are located, the National Physical Laboratory (NPL), the National Institute of Science Communication (NISCOM) of the Council of Scientific and Industrial Research (CSIR), the Institute of Hotel Management, Catering and Nutrition, a Regional Centre of the National Bureau of Soil Survey and Land Use Planning, the National Seeds Corporation and the State Farms Corporation of India.

The programme of instruction leading to M.Sc. and Ph.D. degrees in Agricultural Statistics, Bioinformatics, Computer Application, Molecular Biology & Biotechnology, and Plant Genetic Resources are given at the sister institutes namely Indian Agricultural Statistics Research Institute (IASRI), NRC on Plant Biotechnology (NRCPB) and National Bureau of Plant Genetic Resources (NBPGR) which are located at this campus. Besides, sister Institutes located at the Campus, from the session 2014-15, students for Ph.D. degree in Horticulture, Agricultural Engineering and Post Harvest Technology are also admitted at the other sister Institutes *viz.,* ICAR-Indian Institute of Horticultural Research (IIHR), Bengaluru and ICAR-Central Institute of Agricultural Engineering (CIAE), Bhopal as IARI PG outreach programme.

2. DISCIPLINES (SUBJECTS) FOR ADMISSION DURING 2016-17

The disciplines (main subjects of study) and sub-disciplines (major fields/specializations) within each discipline in which instructions are offered, leading to the Ph.D. degree, are as follows:

Discipline Code	Discipline	Sub-discipline (s)
01.	AGRICULTURAL CHEMICALS	Agricultural Chemicals
02.	AGRICULTURAL ECONOMICS	Agricultural Development and Policy; Agricultural Finance and Project Analysis; Agricultural Marketing and Trade; Farm Management and Resource Economics: and Agri-business Management
03.	AGRICULTURAL ENGINEERING	Agricultural Processing and Structure; Farm Power and Equipment; and Soil and Water Conservation Engineering
04.	AGRICULTURAL EXTENSION	Agricultural Extension; Agricultural Communication; and Agricultural Management
05.	AGRICULTURAL PHYSICS	Agricultural Physics
06.	AGRICULTURAL STATISTICS	Agricultural Statistics
07.	AGRONOMY	Crop Husbandry; and Resource Management
08.	BIOCHEMISTRY	Biochemistry; and Nutrition
09	BIOINFORMATICS	Bioinformatics
10.	COMPUTER APPLICATION	Computer Application
11.	ENTOMOLOGY	Insect Pest Management; Insect Physiology; Insect Biosystematics; and Insect Toxicology
12.	ENVIRONMENTAL SCIENCES	Environmental Sciences
13.	FLORICULTURE AND LANDSCAPE ARCHITECTURE	Floriculture and Landscape Architecture
14.	FRUIT SCIENCE	Fruit Science
15.	GENETICS	Plant Breeding and Genetics
16.	MICROBIOLOGY	Algology; Applied Microbiology; and Soil Microbiology
17.	MOLECULAR BIOLOGY AND BIOTECHNOLOGY	Molecular Biology and Biotechnology
18.	NEMATOLOGY	Nematology
19.	PLANT GENETIC RESOURCES	Plant Genetic Resources
20.	PLANT PATHOLOGY	Fungal Pathology; Mycology; Plant Bacteriology; and Plant Virology
21.	PLANT PHYSIOLOGY	Plant Physiology
22.	POST HARVEST TECHNOLOGY	Post Harvest Technology of Horticultural Crops: and Post Harvest Engineering and Technology
23.	SEED SCIENCE AND TECHNOLOGY	Seed Science and Technology
24.	SOIL SCIENCE AND AGRICULTURAL CHEMISTRY	Soil Science; and Agricultural Chemistry
25.	VEGETABLE SCIENCE	Vegetable Science
26.	WATER SCIENCE AND TECHNOLOGY	Water Science and Technology

3. NUMBER OF SEATS

(i) Open Scheme

The discipline wise details of seats for Ph.D. to be filled at IARI, New Delhi, and for IARI PG outreach programme at CIAE, Bhopal and IIHR, Bengaluru are indicated below:

A. IARI, New Delhi

OPEN SCHEME

Discipline Code	Discipline	Number of Seats					
		General	OBC	SC	ST	PC[@]	Total
01.	Agricultural Chemicals	3	2	0	1	(0)	6
02.	Agricultural Economics	2	2	1	0	0	5
03.	Agricultural Engineering*	4	3	1	0	(0)	8
04.	Agricultural Extension	3	2	1	0	0	6
05.	Agricultural Physics	3	2	0	0	(0)	5
06.	Agricultural Statistics	5	1	1	1	(1)	8
07.	Agronomy	2	2	1	1	(0)	6
08.	Biochemistry	3	1	0	1	(0)	5
09.	Bioinformatics	3	1	1	0	(0)	5
10.	Computer Application	3	1	0	0	(0)	4
11.	Entomology	3	3	1	0	(0)	7
12.	Environmental Sciences	3	1	0	1	(0)	5
13.	Floriculture & Landscape Architecture	2	1	0	0	(0)	3
14.	Fruit Science	2	2	1	0	(0)	5
15.	Genetics	3	3	2	1	(1)	9
16.	Microbiology	3	2	1	0	(0)	6
17.	Molecular Biology & Biotechnology	3	2	2	1	(1)	8
18.	Nematology	2	2	1	0	(0)	5
19.	Plant Genetic Resources	4	1	1	0	(0)	6
20.	Plant Pathology	4	2	2	1	(1)	9
21.	Plant Physiology	3	1	1	1	(0)	6
22.	Post Harvest Technology**	3	1	2	0	(0)	6
23.	Seed Science & Technology	4	1	1	0	(0)	6
24.	Soil Science & Agricultural Chemistry	3	2	2	1	(1)	8
25.	Vegetable Science	3	1	0	1	(1)	5
26.	Water Science & Technology	3	0	0	1	(0)	4
	T O T A L	**79**	**42**	23	**12**	**(6)**	**156**

[@] Seats for Physically Challenged (PC) category are to be allocated horizontally over different categories and will be provided to the PC candidates against the category to which they belong. However, if suitable candidate is not available in a particular discipline, the seat can be transferred to another discipline to fill the number of reserved seats in the respective categories based on merit within the category.

	* Agricultural Engineering	General	OBC	SC	ST	PC[+]	Total
a)	Agricultural Processing and Structure	0	0	0	0	(0)	0
b)	Farm Power and Equipment	2	2	0	0	(0)	4
c)	Soil & Water Conservation Engineering	2	1	1	0	(0)	4

	** Post Harvest Technology	General	OBC	SC	ST	PC+	Total
a)	Post Harvest Technology of Horticultural Crops	2	1	2	0	(0)	5
b)	Post Harvest Engineering & Technology	1	0	0		(0)	1
	(i) Faculty Up gradation Scheme - 10 seats *(ii) ICAR-In-Service Nominee Scheme* - 05 seats *(iii) Departmental (Scientific)* - 10 seats *(iv) Departmental (Technical)* - 26 seats						

B. For IARI PG outreach programme at CIAE, Bhopal

	Agricultural Engineering	General	OBC	SC	ST	PC+	Total
a)	Agricultural Processing & Structure	3	1	1	1	(0)	6
b)	Farm Power & Equipment	3	2	1	0	(0)	6
	T O T A L	**6**	3	2	1	**(0)**	**12**

C. For IARI PG outreach programme at IIHR, Bengaluru

	Horticulture	General	OBC	SC	ST	PC+	Total
a)	Floriculture and Landscape Architecture	1	1	1	0	(0)	3
b)	Fruit Science	2	1	1	0	(0)	4
c)	Vegetable Science	3	1	0	1	(0)	5
	Post Harvest Technology						
a)	Post Harvest Technology of Horticultural Crops	2	1	1	0	(0)	4
	T O T A L	8	4	3	1	(0)	16

Note: The PG School, IARI reserves the right to change the number of seats. In case of any change in the number of seats, the same would be posted on the Institute Website.

4. ACADEMIC TERMS

The academic session of the P.G. School, IARI shall commence on **July 29, 2016** and is divided into three trimesters. The duration of the three trimesters for the 2016-17 academic year is indicated below:

Registration of newly admitted students		:	July 29, 2016
Orientation		:	July 30, 2016
I	**Trimester**	:	1st August, 2016 to 19th November, 2016
II	**Trimester**	:	21st November, 2016 to 01st April, 2017
	Winter Vacation	:	18th December, 2016 to 01st January, 2017
III	**Trimester**	:	3rd April, 2017 to 22nd July, 2017
	Summer Vacation	:	28th May, 2017 to 18th June, 2017
	Trimester Break	:	23rd July, 2017 to 30th July, 2017

5. ELIGIBILITY

A. Open Scheme

(i) Essential Qualification for Admission

(a) Only those candidates who had their Bachelor's Degree Programmes under 10+2+4 OR 10+2+3 OR 10+1+4 system (OR awarded B.Sc. degree under 10+2+2 system prior to 1985) and fulfill the qualifications as prescribed in this bulletin are eligible to apply for admission.

(b) **For General/OBC candidates:** At least 60% marks OR an overall grade point average (OGPA) of 7.50 out of 10.00 OR 3.75 out of 5.00 OR 3.00 out of 4.00 OR 2.25 out of 3.00 in M.Sc./M.Sc. (Ag.)/M.Tech./M.E.

For SC/ST/PC candidates: At least 55% marks OR OGPA of 7.00 out of 10.00 OR 3.50 out of 5.00 OR 2.80 out of 4.00 OR 2.10 out of 3.00 in M.Sc./M.Sc. (Ag.)/M.Tech./M.E.

In case of the universities where OGPA is awarded with equivalence of percentage marks, only OGPA will be considered for determining the eligibility qualification for appearing in the entrance examination. The percentage of marks shall be considered only for candidates coming from universities that do not award grades.

Note : Candidates who appear at the Master's Degree final year Examination in 2016 are also eligible to apply and appear in written entrance examination provisionally for Ph.D. programme. However, they will have to submit documentary evidence of their eligibility on or before **July 2, 2016** failing which they shall not be considered for Interview.

(ii) Qualification for Admission to Different Disciplines

Code No.	Discipline	M.Sc./M.Sc.(Ag)/M.Tech./M.E. in
01.	Agricultural Chemicals	Agricultural Chemicals/Soil Science and Agricultural Chemistry/ Environmental Science/Chemistry
02.	Agricultural Economics	Agricultural Economics/Dairy Economics/Livestock Economics/ Agricultural Marketing and Cooperation/Fisheries Economics
03.	Agricultural Engineering	Agricultural Engineering/Dairy Engineering/Water Science and Technology; M.Sc. in Dairy Engineering are eligible for Ph.D. in Agricultural Processing and Structures (Pre- requisite: B.Sc./ B.Tech./BE in Agricultural Engineering)
04.	Agricultural Extension	Agricultural Extension/Extension Education/ Dairy Extension/ Fisheries Extension/Livestock Extension/Home Science Extension/ Agricultural Extension and Communication/ Veterinary and Animal Husbandry Extension
05.	Agricultural Physics	Agricultural Physics / Soil Science / Agricultural Meteorology / Meteorology/Physics/Bio-physics/ Water Science and Technology/Geo-informatics/Remote Sensing
06.	Agricultural Statistics	Agricultural Statistics/Statistics/Mathematical Statistics/Bio-Statistics
07.	Agronomy	Agronomy/Water Science and Technology/Water Management
08.	Biochemistry	Biochemistry/Agricultural Biochemistry/Agricultural Chemistry/ Molecular Biology and /OR Biotechnology/Relevant discipline of Life Sciences/Chemistry with Organic Chemistry as a special subject/ Plant Physiology/ Biophysics
09.	Bioinformatics	Bioinformatics OR Molecular Biology/Biotechnology/Computer Sciences/Computer Application/ Agricultural Statistics /Statistics /Mathematical Statistics/Biostatistics with Bioinformatics as a subject in Post Graduation Degree.

10.	Computer Application	M.Sc./MCA/M.Tech./M.E. in Computer Science/Computer Application/ Computer Engineering/ Computer Science Engineering/ Information Technology
11.	Entomology	Entomology/Agricultural Entomology/Zoology or Plant Protection with Entomology as specialization/Relevant Life Sciences
12.	Environmental Sciences	Agricultural Sciences/Environmental Sciences/Physical Sciences/ Life Sciences/ Chemical Sciences
13.	Floriculture and Landscaping Architecture	Horticulture or Agriculture with major in Floriculture/Post Harvest Technology of Horticultural Crops/Genetics and/OR Plant Breeding/Plant Genetic Resources/Plant Physiology/Crop Physiology with specialisation in Floriculture
14.	Fruit Science	Horticulture or Agriculture with major in Fruit Science/ Pomology/Genetics and/OR Plant Breeding/Plant Genetic Resources/Plant Physiology with specialisation in any of above discipline of Fruit Science/Physiology/Water Science and Technology
15.	Genetics	Genetics and/OR Plant Breeding/Plant Genetic Resources/any other branch of Biological Sciences with Genetics and/OR Plant Breeding as a subject
16.	Microbiology	Microbiology/Agricultural Microbiology /Soil Science and/OR Agricultural Chemistry/ Genetics/Botany/Agricultural Botany/ Molecular Biology and/OR Biotechnology/Relevant Life Sciences/ Biochemistry with Microbiology as a special subject/Environmental Microbiology/Industrial Microbiology
17.	Molecular Biology & Biotechnology	Molecular Biology and/OR Biotechnology/ Biochemistry/ Agricultural Biochemistry/Botany/Agricultural Botany/Genetics and/OR Plant Breeding/Relevant Life Sciences/ Microbiology Agricultural Microbiology/Plant Genetic Resources/Bioinformatics
18.	Nematology	Nematology/Entomology/Zoology/Botany/Mycology and/ OR Plant Pathology/Relevant Life Sciences/Molecular Biology and/ OR Biotechnology/Plant Protection with Nematology as specialization/ Agricultural Entomology/Agricultural Microbiology/Helminthology with Nematology
19.	Plant Genetic Resources	Plant Genetic Resources/Genetics/Plant Breeding/ Agricultural Botany/ Horticulture/Plant Biotechnology/ Seed Science & Technology/Plant Physiology/any other branch of Biological Sciences with specialization in these subjects and/OR Plant Taxonomy/Economic Botany/Biotechnology
20	Plant Pathology	Mycology and/OR Plant Pathology/Botany/ Agricultural Botany/ Molecular Biology and/OR Biotechnology/Genetics/Microbiology/Seed Science & Technology/ Biochemistry/Plant Genetic Resources/Plant Protection/Relevant Life Sciences with Mycology and Plant Pathology as specialization/Bioinformatics
21.	Plant Physiology	Plant Physiology/Crop Physiology/Botany/Agricultural Botany/ Biochemistry/Relevant Life Sciences/Molecular Biology and/OR Biotechnology/Plant Genetic Resources/Bio Science/Plant Science
22.	Post Harvest Technology	**a) For Post Harvest Technology of Horticultural Crops** Horticulture/Post Harvest Technology/Food Science & Technology **b) For Post Harvest Engineering and Technology** Agricultural Processing and Structures/Food Engineering/ Post Harvest Engineering/Biochemical Engineering.

23.	Seed Science & Technology	Seed Science & Technology or any one of the discipline of Genetics and/OR Plant Breeding/Plant Physiology or Crop Physiology/Botany/Agricultural Botany/Plant Genetic Resources/ Mycology and/OR Plant Pathology or Entomology or Nematology with specialization in Seed Science
24.	Soil Science & Agricultural Chemistry	Soil Science and/OR Agricultural Chemistry/Chemistry/ Agricultural Physics with specialization in Soil Physics/ Environmental Sciences with specialization in Soil Science/Agricultural Microbiology with specialization in Soil Science
25.	Vegetable Science	Horticulture or Agriculture with major in Olericulture/ Vegetable Science/Vegetable Breeding/ Genetics and/OR Plant Breeding/Plant Genetic Resources with specialization in Vegetable Science
26.	Water Science & Technology	Water Science and Technology/Agricultural Physics/ Soil Science & Agricultural Chemistry/Mathematics (with Physical Sciences at Bachelors Degree Level)/ M.Tech in Agril. Engineering/Civil Engineering

(iii) Age Limit

The minimum age for admission shall be **21 years as on 31st July, 2016**. No relaxation is admissible regarding the minimum age limit.

B. Admission of in-service candidates of Agricultural Universities under Faculty Upgradation Scheme (FUS)

i. **Essential Qualifications:** Same as given under Open Scheme.

ii. Not more than three candidates sponsored by any university shall be admitted in any one year under this stream.

iii. The candidates sponsored under this scheme should be regular employees of the university and should be likely to continue in service after obtaining the training. The candidates should be sponsored on deputation terms entitling them to full salary and allowances. No fellowship shall be awarded to them by the IARI.

iv. The words **"Sponsored for admission under Faculty Upgradation Scheme"** should be clearly inscribed on the application form and on the forwarding letter. The sponsorship certificate as given at **Annexure- I** may be attached with the application and duly forwarded by the Vice-Chancellor or his nominee.

C. Admission under ICAR in-service nominee scheme

i. Essential Qualification: Same as given for admission under Open Scheme.

ii. The candidates sponsored under this scheme should only be those ICAR employees who have qualified the ICAR Senior Fellowship examination with or without fellowship.

iii. The word **"Sponsored for admission under reserved seats for ICAR employees"** should be clearly inscribed on the application form and in the forwarding letter. The declaration as given in **Annexure-I** signed by the Director of the concerned Institute and a sponsorship letter from Deputy Director General (Education), ICAR as given in **Annexure-II** should be attached with the application form.

D. Admission under departmental quota

This scheme of admission is meant for Scientific and Technical staff working at IARI/IASRI/NBPGR/ NRCPB. Separate circular is issued by the PG School in this regard.

6. RESERVATION

i. Fifteen percent (15%) of the total number of seats is reserved for Scheduled Caste (SC) and seven-and-a-half percent for Scheduled Tribe (ST) candidates subject to their being otherwise suitable. In the event of there being no eligible suitable SC candidates in the earmarked discipline, to fill up the mentioned number of seats, such unfilled seats shall be transferred to other disciplines, where eligible suitable SC candidates are available

for filling these seats. An identical procedure as above will be followed in the case of ST reservations also. After these two exercises, if any seat(s) still remain(s) unfilled in the SC and ST categories respectively, such unfilled SC/ST seat(s) shall be transferred to SC/ST category and filled up by the available eligible candidate(s) in the concerned category. Under no circumstances, the SC and ST seats shall be transferable from M.Sc. to Ph.D. programme and vice-versa. The SC/ST candidates who are selected for admission on the basis of merit may not be counted against the reserved quota and there is no maximum limit on the admission of the candidates belonging to the two categories.

ii. Twenty Seven percent (27%) of the total number of seats is reserved for other backward classes (OBC) candidates subject to their being otherwise suitable as per the norms of ICAR/Govt. of India. In the event of there being no eligible suitable OBC candidates in the earmarked discipline, to fill up the mentioned number of seats, such unfilled seats shall be transferred to other disciplines, where eligible suitable OBC candidates are available for filling these seats. If any seat(s) still remain(s) unfilled, the unfilled OBC seat(s) shall be transferred to General Category.

iii. Three per cent (3%) of the total number of seats in each scheme of admission open to Indian nationals is reserved for Physically Challenged (PC) candidates subject to their being otherwise suitable as per the norms of ICAR/Govt. of India. However, in the event of there being no eligible suitable PC candidates in the earmarked discipline, to fill up the mentioned number of seats, such unfilled seats shall be transferred to other disciplines, where eligible suitable PC candidates are available for filling these seats.

iv. **Reservation as indicated above shall be applicable individually for Indian Agricultural Research Institute, New Delhi and its outreach programme Indian Institute of Horticultural Research, Bengaluru and Central Institute of Agricultural Engineering, Bhopal.**

7. PROCEDURE FOR APPLICATION

i. **Candidates are required to submit their application form online only. For instructions please refer the information Bulletin.**

ii. A candidate who has already been awarded Ph.D. degree from IARI or any other university/Institute shall not be allowed for entrance examination for the same degree.

iii. **A candidate can apply for admission to one discipline only.**

iv. As a PG outreach programme of IARI**,** applications are also being invited for our sister Institutes *viz.,* Indian Institute of Horticultural Research, Bengaluru and Central Institute of Agricultural Engineering, Bhopal in the discipline of Horticulture, Agricultural Engineering and Post Harvest Technology. The candidates shall exercise their choices of Institute for these disciplines while applying.

v. The candidates who are appearing in the Master's degree examination in 2016 are also eligible to apply provisionally for admission and appear in the entrance examination, but they will have to submit documentary evidence (including mark sheet for M.Sc. examination) of their eligibility latest by **4.30 P.M. on July 2, 2016.**

Candidates who are in employment are required to take printout of their application form submitted online and send it through proper channel to the Registrar, Post Graduate School, IARI, New Delhi-110012 so as to reach **by March 14, 2016**. **Any application received after the last date shall not be entertained.**

vi. **Self attested copies of the following documents must be enclosed along with the print out of the Application Form submitted online failing which the application form shall not be considered.**

a. Matriculation (X) certificate for Proof of the date of birth.
b. Master's degree certificate and marks sheet.
c. Other Backward Class, Scheduled Caste/Scheduled Tribe and Physically Challenged Certificate (whichever is applicable) in the proforma as at **Annexure-III, IV, and V**, respectively from the authorities empowered to issue such certificate of verification issued not more than six months before the date of application/Admission.

d. Certificate to be produced by candidates who are appearing for their M.Sc. final examination **2016** in the proforma as at **Annexure-VI.**
e. Demand Draft in favour of Director, IARI, payable at New Delhi.

vii. **If a candidate furnishes wrong information or suppresses any relevant information, the application is liable to be summarily rejected.**

viii. Candidates must produce originals and as well as one set of self attested copies of the following documents (whichever is applicable) before they join the course, if selected, failing which candidates will not be allowed to join the course.

a. Proof of the date of birth.
b. Matriculation (X) or equivalent certificate and marks sheet.
c. Intermediate (XII) examination certificate and marks sheet.
d. Bachelor's degree certificate and marks sheet.
e. Master's degree certificate and marks sheet.
f. Other Backward Class, Scheduled Caste/Scheduled Tribe and Physically Challenged Certificate (whichever is applicable) in the proforma as at **Annexure-III, IV, and V**, respectively from the authorities empowered to issue such certificate of verification issued not more than six months before the date of application/Admission.
g. Certificate to be produced by candidates who are appearing for their M.Sc. final examination **2016** in the proforma as at **Annexure-VI.**

ix. Admit Cards for the Entrance Examination to be conducted on **April 24, 2016** may be downloaded during **April 20-24, 2016**.

x. If any document submitted by the candidate is found to be false at any stage during his/her study at IARI, his/her admission will be cancelled.

xi. **The candidate must give a choice for centre of examination from the list of cities while applying ONLINE, nearest to the permanent address or the university last attended, otherwise PG School will allot the examination centre accordingly. Efforts will be made to honour the choice of centre. However, PG School may allot another centre due to any administrative reasons.**

xii. **The candidates selected for admission at IARI, shall be required to furnish a surety bond for an amount of Rs. 50,000/- (Rupees fifty thousand only) on non-judicial stamp paper valuing** Rs. **100/-duly attested by the notary as per the Annexure VIII.**

xiii. Ragging in any form is strictly prohibited at these Institutes premises including hostels. The following could be the possible punishments for those who are found guilty of participation in or abetment of ragging. The quantum of punishment shall, naturally, depend upon the nature and gravity of the offence as established by the Disciplinary Committee or the court of law.

- Cancellation of admission.
- Suspension from attending classes. Withholding/withdrawing scholarship/fellowship and other benefits. Debarring from appearing in any test/examination or other evaluation process.
- Withholding results
- Debarring from representing the institution in any national or international meet, tournament, youth festival, etc. Expulsion from the hostel.
- Expulsion from the institution for periods varying from 1 to 3 trimesters.
- Expulsion from the institution and consequent debarring from admission to any other institution. Fine up to Rs. 25,000/-.
- Rigorous imprisonment up to three years.

xiv. Medical insurance is compulsory for all the students admitted at these Institutes, charges of which shall be borne by the student himself/herself.

xv. The entrance examination will be conducted in the cities namely; **Bhopal, Bangalore, Coimbatore, Delhi, Guwahati, Hyderabad, Kolkata, Pune, Udaipur, and Varanasi**

8. SELECTION OF CANDIDATES

Academic Attainments (Record)

Weightage for academic attainments (High School to terminal degree) would be 10%.

Entrance Examination

The weightage for entrance examination is 80%. The candidates will have to appear for Entrance Examination consisting of one paper of three parts: Part-I (General Agriculture) and Part-II & III (Subject Paper). The minimum qualifying mark is 50% for General/OBC, 45% for SC/ST/PC candidates. Total marks would be considered for the preparation of merit.

Interview

The weightage for interview is 10%. Candidates qualifying in the Entrance Examination will be called for interview in the ratio of maximum 1:4 (No. of seats: No. of students called for interview). The interview would be held on **July 4, 2016** in respective Disciplines and the candidates may download their interview letter from **June 29 to July 02, 2016**.

Merit after the interview and choice as exercised by the candidate in the Application Form shall be the criterion for selection in the respective Institutes subject to fulfillment of all the other requirements for admission.

The list of selected candidates will be displayed at P.G. School, IARI and on website of IARI, New Delhi (www.iari.res.in) on **July 8, 2016** and the selected candidates may download their selection letter from **July 15 to July 29, 2016.**

The selected candidates will be allowed to join the Post Graduate School of IARI, New Delhi and its outreach programme at CIAE, Bhopal or IIHR, Bengaluru for pursuing further studies only after they are declared medically fit. **In-service candidates from all schemes will have to produce the proper relieving order from their parent office/department/University at the time of enrolment.**

9. COURSE-CREDIT SYSTEM

The student's programme of studies is planned after taking due account of his/her previous academic training. This is done by an Advisory Committee which consists of Chairperson from the major field of specialization and other members from the major and minor fields. Ph.D. students are required to take two minors (minimum of nine credits in each) from supporting disciplines. The course work of each student will also include the following compulsory courses.

A. Courses on Introductory Agriculture*:* The candidates, who have not been exposed to agricultural science discipline in their last examination, if admitted to Ph.D. programme will have to take Introductory Agriculture courses of 38 credits during the first three trimesters and a training during summer vacation. These courses shall be over and above the prescribed credit load for the Ph.D. degree and will be graded and counted for calculating OGPA like regular courses.

B. Compulsory Courses*:* Following courses have been introduced as compulsory courses for all **M.Sc./M.Tech.** students: (i) Library and Information Services, (ii) Technical Writing and Communication Skills, (iii) Basic Statistical Methods in Agriculture, and (iv) History of Agriculture. **For Ph.D. students,** the compulsory courses are: (i) Intellectual Property and its Management in Agriculture, (ii) Agricultural Research, Research Ethics, and Rural Development Programmes, as well as all the four compulsory courses of M.Sc./M.Tech., in case, these are not done at M.Sc./M.Tech level. These courses will be over and above the prescribed minimum credit load for M.Sc./M.Tech./Ph.D. degrees, and will be graded and counted for calculating OGPA like regular courses.

The details of the course credits, course numbers, course titles, etc. are included in the P.G. School Calendar. The student's attainment in the courses taken by him/her is judged from the grade obtained in each course and the progress is measured in terms of the overall grade point average (OGPA). The maximum attainable OGPA is 10.00 and the minimum passing point is 6.00.

Although the minimum residential requirement for Ph.D. course is three academic years, this period is likely to be extended due to requirements in individual cases. All the requirements for the Ph.D. degree however, must be completed within five years from the date of admission.

The maximum period of leave that can be availed by any student during the course of studies is one trimester i.e. 12 weeks. In exceptional cases, the Dean may permit students to avail leave from the P.G. School for a maximum period of two trimesters, only on grounds of self illness.

The detailed rules and regulations and also the syllabi of the various courses are given in the Post Graduate School Calendar.

10. RESEARCH WORK

As a part of their doctoral programme, students have to undertake research work on problems approved by the Dean as recommended by the Boards of Study in different disciplines and submit a thesis. While students admitted to IARI and PG outreach programme of IARI at CIAE and IIHR normally carry out their research work at these Institutes, but they may also be sent for a part or all of research work to regional stations or abroad recognized for the purpose.

11. FEES AND EXPENSES

The students are liable to pay fees, funds and other charges as may be laid down from time to time. SC/ST students are entitled to the reimbursement of the tuition fees.

12. RESIDENCE

The residence in the hostel is compulsory for all students of the Post Graduate School admitted at IARI. However, duration of stay can be restricted in case of non-availability.

13. SCHOLARSHIP, MEDALS AND AWARDS

Financial assistance in the form of IARI scholarship for Ph.D. students will be provided to the extent feasible, as per rules and regulations of the Post Graduate School of the IARI. The value of IARI scholarship is Rs. 13,125/- per month for a period of three years. The students are also entitled to get a contingent grant of Rupees 10,000/- per annum for the purchase of books, chemicals, equipment etc., subject to submission of surety bond as per **Annexure-VIII** of this Information Bulletin. Students who had availed the same scholarship previously will not be eligible for scholarship again.

14. DISCIPLINE

The Dean, Post Graduate School is charged with the general control of students and with the maintenance of discipline. The Dean shall have the discretion to remove any student from the rolls of the P.G. School of Institutes for one or several of the following reasons.

(a) Failure to gain from the course of studies

(b) Misbehavior

(c) Failure to pay the dues (fees, etc.) in time

(d) Continuous absence from studies for a long period

Notes:

1. Students are prohibited from applying for admission to any other institution without prior permission of the Dean.

2. If any property/equipment on the campus is damaged and loss caused to the Institution as a result of violence, demonstration, strikes, etc. resorted to by the students, the loss would be recovered either directly from the persons specially identified (wherepossible) or collectively from such groups or associations as were responsible for causing the damage or loss to property.

15. STUDENTS' SUPPORT SERVICES

i. ***Library:*** The IARI library is one of the oldest and the best in South Asia. It is playing the role of National Agricultural Library of India, and is regarded as one of the 10 best agro-biological libraries of the world. The IARI Library has got a well equipped 'Facility Management Unit' and a 'Training Cell'. Periodic trainings are organized for scientists and students of the Institute for CD-ROM search, Digital Resources, E-Journals, On-line information retrieval etc. Library is fully automated with vast collection of highly specialized research publications on agriculture and related sciences. The collection gets enriched continually. CD ROM, Online journals, CeRA, OPAC are available in campus through LAN connectivity to nearly 2000 users. Reading Halls are having wired internet terminals as well as Wi-Fi connectivity.

The library has 10,500 serial files, and 2000 current serials are being procured from 90 countries. Exchange relationship is maintained with 67 Indian and foreign institutions. Library is repository of FAO, CGIAR publications. The IARI Library has been assigned the job of AGRIS database input for National Agricultural Research Database (NARD) in ISO format using AGRIN methodology. This library is contributing in AGRIS database in merging data of 10 core Indian Journals.

ii. ***Medical Facilities:*** A qualified Medical Officer looks after the health of the students, and is incharge of the IARI Dispensary located in the vicinity of the Hostels. The Medical Officer resides on the Institute campus and is thus available during day and night. The medical service is provided free to students at the dispensary.

iii. ***Sports and Recreation:*** The Post Graduate School encourages extra-ccurricular activities that enrich cultural, physical and social life of students. Spacious playgrounds are provided near the student hostels and necessary facilities exist for outdoor games like cricket, football, hockey, volleyball, tennis, badminton and various athletic events. There are facilities also for indoor games in each hostel. There is a Students' Sports Fund to which every student subscribes at the beginning of each academic year.

iv. ***Student Welfare Fund:*** With a view to render financial aid to students in distress and to support any other students' activities, a Students' Welfare Fund has been instituted. All students are required to contribute to the fund at the beginning of each academic year. No loan shall ordinarily be given from this fund in the first trimester of admission.

v. ***Students' Counseling and Placement Cell:*** A 'Student Career Development and Industry Interface Centre' has been established for career counseling and arranging frequent Institute-Industry interface. It has been organizing campus interviews for career counseling and placement of outgoing students in the jobs of their choice.

vi. ***Post Graduate School Students' Union:*** All students admitted to the Post Graduate School automatically become members of Post Graduate School Students' Union and are entitled to participate in the Union election.

vii. ***Internet facility:*** Internet and intranet and Wi-Fi connectivity has been provided at all the hostels and guest houses for trainees and visiting faculty. Creation of this facility in students' hostels is a step forward in the area of knowledge dissemination and awareness for establishing a healthy and productive relationship between scientists and students for overall national agricultural development. The facility is made available to students free of charge. The course schedules along with contents and suggested reading are also available on IARI intranet system.

viii. ***Communication and Language Laboratory:*** This facility created in 2012 is being used to teach English and Hindi language courses and communication skills to students who need improvement in these aspects.

16. SYLLABI FOR ENTRANCE EXAMINATION FOR Ph.D.

The Entrance Examination will be in the form of one question paper of three distinct parts. The questions will be of multiple choice and matching types in part I & II (30 marks and 150 marks, respectively) and short analytical type in part III (30 marks). Answers for part I & II are to be given on computerized OMR answer sheets (see **Annexure-VII**) and that of part III in the space provided for the purpose in the question paper. Negative marking to the extent of 0.25 marks for each wrong answer will be applicable in case of part I and II of the questions of the paper.

Part-I : General Agriculture

Reference Book : Handbook of Agriculture (Sixth Revised Edition), published by the ICAR.

PART- I : GENERAL AGRICULTURE

Importance of Agriculture in national economy; basic principles of crop production; cultivation of rice, wheat, pigeonpea, sugarcane, tomato, cauliflower, mango and rose.

Weathering of rocks; soil formation, major soils of India, soil erosion and its control; common farm implements; role of NPK and their deficiency symptoms; manures (FYM, compost and green manure) and fertilizers (urea, diammonium phosphate, single superphosphate and muriate of potash).

Structure and function and cell organelles - mitosis and meiosis; gametogenesis, fertilization and embryogenesis; chromosomal and extra-chromosomal basis of inheritance; mutation and polyploidy; selection methods, hybridization, backcross; plant growth regulators; elementary knowledge of photosynthesis, respiration and nitrogen fixation.

Isomerism; titrimetry and volumetry; structure and function of carbohydrates, proteins, nucleic acids, enzymes and vitamins.

Major pests and diseases of rice, maize, pulses, oilseeds, vegetables, wheat, cotton, sugarcane and their management.

Important principles of economics, structural transformation in economy and its globalization; principles of extension education; important rural development programmes in India; organizational set up of agricultural research, education and extension in India, elements of statistics.

PART-II AND III: SUBJECT PAPER

AGRICULTURAL CHEMICALS (01)

Nomenclature and classification of organic compounds, chemical bonding; isomerism and stereo chemistry; properties and reactions of organic functional groups; aliphatic, alicyclic, aromatic and heterocyclic compounds; theory and application of chromatography and spectroscopy (IR, UV, NMR) in the study of organic compounds; chemistry of natural products; mono and sesqui-terpenes, steroids (cholesterol and Vitamin D), alkaloids (pyrrolidine, piperidine, pyridine, pyrole groups), lipids, carbohydrates, plant pigments, nucleic acids, amino acids and proteins.

Chemical equilibria; chemical kinetics, kinetic theory of gases, thermodynamics; surface chemistry, colloids, emulsions.

Titrimetry, theory of indicators; redox reactions.

Classification of pesticides; chemistry of botanical pesticides (pyrethroids, rotenoids, nicotinoids) and synthetic insecticides (DDT, BHC, cyclodienes, malathion, methyl parathion, monocrotophos, phorate, carbaryl, carbofuran), fungicides (Bordeaux mixture, zineb, captan, ziram), herbicides (2,4-D, atrazine, diuron and butachlor), fumigants (EDB, EDCT, aluminium phosphide), rodenticides (Warfarin) and nematicide (nemagon); pesticide formulation - definition and classification, surfactants; pesticide residue chemistry.

Essential plant nutrients; chemistry, technology and use of important fertilizers; clays and clay minerals; soil organic matter, nitrification and denitrification; N2-fixation; radioactivity and radiotracer techniques.

AGRICULTURAL ECONOMICS (02)

Basic concepts in economics, theory of consumer demand, theory of production, market classification, theory of perfect and imperfect competition, theory of distribution, national income accounting, classical and Keynesian theories of income determination, money-concepts, functions, theories of demand for money, supply of money; general equilibrium of product and money markets; IS and LM functions; monetary and fiscal policies, banking - central and commercial, functions and problems of recent macro-economic policies of Government of India; research methodology, steps in agricultural economics research, data collection, analysis and report writing; differential and integral calculus, differential equations, matrix algebra, solution of simultaneous linear equations, linear programming, statistical inference, correlation and regression analysis, time series analysis and theory of index numbers.

Nature and scope of agricultural production economics vis-a-vis farm management; farm business analysis, farm records and farm cost accounting; farm planning and budgeting, production function and resource allocation; cost, profit and supply functions; nature and analysis of risk in farming; systems approach in farming; role of credit in agriculture, principles of agricultural finance, farm financial management, supply and demand for farm credit; recent innovations in the extension of credit to agriculture, theory and practice of co-operation; problems of co-operatives, management of co-operative institutions; cost-benefit analysis of agricultural projects.

Scope of marketing in a developing economy; practice and problems of marketing agricultural inputs and outputs; functions and channels of marketing, co-operative marketing; agricultural price analysis; demand analysis; problems and prospects of storage and processing of agricultural products; agricultural exports - problems and prospects.

Theory of growth and growth models; agricultural policy, planning and development in India, inter-regional variations in agricultural development, agricultural technology and income distribution; agrarian reforms and output and input price policies; infrastructure and institutions for agricultural development, equity and ecological consideration in agricultural development.

AGRICULTURAL ENGINEERING (03)

Basic concepts in calculus, trignometry, analytical geometry, linear algebra and algebra of real and complex numbers; instrumentation for measurement of forces, torque, temperature, moisture, fluid flow; basic principles of simulation; methods of statics, dynamics and mechanics of materials; common distributions of random variables and methods of statistical inference; energy sources - their utilisation and efficiencies on the farm; uses and application of computers.

In addition, attempt any one of the following three areas depending upon the major field of choice.

i. Agricultural Processing and Structures

Application of engineering properties in designs; principle of heat transfer, boundary layer and turbulence; mass transfer operations, mechanisms of moisture movement; theory of drying, equilibrium moisture content; methods of storage and milling; design of material handling devices; mechanical separation; design consideration in farm structure and animal housing; seed processing equipments; plant layout.

ii. Farm Power and Equipment

State of farm mechanization; testing of power units and tractor systems; performance capacities of power and machines on the farm; management of power and machinery and their use on the farm; dynamics of machine elements; tillage and tractor machines; design considerations in farm machinery and power units; tractor hydraulics, symbols and circuits; ergonomic consideration in machine design.

iii. Soil and Water Conservation Engineering

Principles of fluid mechanics; theory of ground water recharge, collection, analysis and interpretation of hydrological data; principles and practices of irrigation and drainage, soil erosion; types, measurement and control; stream gauging and sediment monitoring; soil conservation practices, command area development; watershed management; open channel flows; design and operation of water lifting devices; consumptive use of water; estimation of evapo-transpiration; irrigation water distribution methods; water harvesting; lining of waterways and canals; modelling of soil-plant-water relationships; stability of slopes and design of earthen dams.

AGRICULTURAL EXTENSION (04)

Objectives, philosophy and principles of extension education; extension role of agricultural universities; comparative studies of extension education system in selected developed and developing countries; different models of organising agricultural extension, particularly tools and methodology; agricultural information (knowledge) system; teaching and learning processes; principles of adult learning; audio-visual aids and their classification; modern communication and information technology; application of PERT/CPM principles of programme planning process; agricultural and rural development programmes in India.

Principles of extension management, different theories of management processes and functions of managemental organisational set-up for extension services in India including the T & V system; types of training programmes for extension personnel and farmers; model of modern training, modern technologies, experimental learning methods, entrepreneurial development process; factors affecting extension training.

Scope and importance of psychology in extension education, concept of human society; characteristics of rural people; socio-psychological basis of human behaviour, socio-psychological factors in transfer of technology; social structure; social interactions and processes; values and norms of rural social systems; rural institutions; role of leadership; process of diffusion and adoption; consequences of adoption of innovations; communication process and elements of communication; theories of communication, fundamentals of farm journalism; role of mass media; modernelectronic media.

Process of scientific research; validity and reliability of measuring devices; methods of observation and data collection; techniques of tabulation; analysis of data and report writing; methods of statistical analysis; statistical designs.

AGRICULTURAL PHYSICS (05)

Scope of agricultural physics; different forms of energy; first and second laws of thermodynamics, free energy and work function relationship; radioactivity, law of radioactive disintegration, detection and measurement of nuclear radiation and stable isotopes; concepts of tracer methodology; application of radioisotopes and radiation in agriculture; electromagnetic radiation, visible and infrared region and their application to remote sensing in agriculture.

Weather and climate; climatic classification; Koppen and Thornthwaite systems; humid and dry climates; continental, maritime and desert climates; climatology of India; western disturbances, cyclones, arid and semi- arid regions.

Soils of India; factors and processes of soil formation; physical, physicochemical, biological and mineralogical properties of soils; soil compaction and mechanical impedance; stress strain relationships; structure and physical properties of water; Poiseuille's law, Darcy's law; soil water retention and movement under saturated and unsaturated conditions; infiltration, redistribution and evaporation of soil water; field water balance and water use efficiency; soil aeration; gaseous interchange; influence of soil temperature and aeration on crop growth and their management; soil erosion and control.

AGRICULTURAL STATISTICS (06)

Elements of probability theory, concepts of random variable and distribution function, conditional probability; Bayes' theorem; moments; moment generating and characteristic functions; Chebychev's inequality, law of large numbers; limit theorems; univariate (discrete and continuous) distributions; sampling distributions, transformations; multivariate normal distribution, Wishart's distribution, Hotelling's T2; discriminant function; elements of stochastic processes; theory of point estimation; Cramer-Rao inequality; Rao-Blackwell theorem; methods of estimation; confidence intervals; testing of hypothesis, tests of simple hypothesis against simple or composite hypothesis; likelihood ratio test; sequential probability ratio test; large sample tests; non-parametric tests.

Concepts of sampling and non-sampling errors; simple random sampling; stratified sampling, allocation of sample to strata gain due to stratification; ratio and regression methods of estimation; cluster sampling; two stage sampling; systematic sampling; sampling with probability proportional to size with replacement.

Principles of design of experiments; uniformity trials; completely randomized, randomized block and latin square designs; missing values in randomized block and latin square designs; analysis of non-orthogonal data in two-way classification (without interaction); factorial experiments and confounding in symmetrical factorial experiments - design and analysis of 2n and 3n experiments; split and strip plot designs; balanced incomplete block design (BIBD)- parametric relations and general properties; analysis of BIBD with recovery of interblock information.

Statistical analysis for segregation and linkage; random mating and equilibrium in large populations; inbreeding - effects of finite population size; polygenic systems for quantitative characters; genetic variance and correlation; heritability, repeatability; individual, family and combined selections; selection for improving several characters; cross-breeding.

AGRONOMY (07)

Principles of crop production, crop plants in relation to environment, concepts involved in growth analysis; quantitative agro-biological principles and their validity; classification of climate, agro-climatic zones of India, their characteristic features; physiological limits of crop yield and variability in relation to the agro-ecological optimum; types of tillage - concepts and practices.

Principles and practices of weed control in component crops and cropping systems; crop weed competition, herbicide-formulations, classification, selectivity and mode of action, integrated weed management.

Introduction, origin, history, production, distribution, cultural practices, varieties, quality, biomass production and bioenergetics of major field crops, forage, vegetable, spices and condiment crops.

Soil fertility and its management; essential plant nutrients, their functions and deficiency symptoms in plants; organic manures, chemical and biofertilizers and fertilizer usage.

History of irrigated agriculture, soil-water-plant relationship, soil moisture stress and plant growth; drought resistance in crops, mechanisms of drought tolerance, and crop adaptability, soil and plant moisture conservation techniques, water harvesting and other agrotechniques for dryland agriculture; measurement of soil moisture, methods of scheduling irrigation, methods of irrigating crop plants, quality of irrigation water; watershed management concepts; management of excess soil water, agricultural drainage, principles and practices; problem soils - saline, alkali, saline-alkali and acid soils, principles and practices and prospects; wasteland management, soil erosion and its control.

Cropping systems - principles and practices; changing cropping patterns in different agro-climatic zones; sustainability - concept and practices; agro-forestry systems - concepts and practices.

Principles of experimental designs, analysis and interpretation of data, methods of statistical analysis and statistical designs.

BIOCHEMISTRY (08)

Importance of biochemistry in plant sciences; plant cell structure, cell organelles and their function; chemistry of bonding, isomerism, free energy, enthalpy and entropy; pH and buffers.

Enzymes and enzyme kinetics; structure, function and immobilization of enzymes; metabolism of carbohydrates, proteins, lipids and nucleic acids; structure and function of vitamins and hormones; metabolism of secondary plant products; nitrate assimilation and biological nitrogen fixation; sulphur metabolism; photosynthesis and respiration.

DNA replication, transcription, and translation, regulation of gene expression in eukaryotes and prokaryotes; viruses and bacteriophages; basic concepts of genetic engineering and its application in crop improvement; elementary concepts of immunology.

Fundamental principles of nutrition, balanced diet, calorie and protein requirement, nutritive value of foods. Chromatography, electrophoresis, isoelectric focusing; ultracentrifugation; radio isotopic techniques in biochemical studies; spectrophotometry and ELISA.

BIOINFORMATICS (09)

Nucleic acids as genetic material; chemistry, structure and function of DNA and RNA, Genome organization in prokaryotes and eukaryotes; DNA replication, Transcription process; RNA processing; RNA editing; Genetic code;Translation and post-translational modifications, Function of genes and genomes; Nucleic acid hybridization; PCR and its applications. Genomics, transcriptomics and proteomics. Molecular markers in basic and applied research; Genetic engineering and transgenics; General application of biotechnology in agriculture

Genomic and proteomic databases: NCBI/ EBI/EXPASY etc.; SWISSPROT, UniProtKB, PIR-PSD, PDB, Prosite, BLOCKS, Pfam/Prodom etc. Concepts of sequence analysis, Pairwise sequence alignment algorithms: Needleman &Wunsch, Smith & Waterman, BLAST and FASTA. Scoring matrices for Nucleic acids and proteins: PAM, BLOSUM. Multiple sequence alignment. Sequence based gene prediction and its function identification. Protein structure prediction and homology modelling. Molecular dynamics simulation and docking. Visualization of tertiarystructures, quaternary structures, architectures and topologies of proteins using molecular visualization softwares such as RasMol, Cn3D, SPDBV, Chime, Mol4D etc. Phylogenetic trees and their comparison, Phylogenetic analysis algorithms: Maximum Parsimony, UPGMA, Neighbor-Joining.

Theory of probability. Random variable and mathematical expectation. Probability distributions: Binomial, Poisson, Normal distributions and their applications. Concept of sampling distribution: t, chi-square and F distributions. Tests of significance based on normal, t, chi-square and F distributions. Population genetics: Hardy –Weinberg law, Effect of systematic forces on changes in gene frequency. Foundations for Machine learning Techniques: Unsupervised and Supervised Learning, Cross Validation Techniques, Markov Model, Hidden Markov Model.

Computer programming languages: Perl, Bio Perl and Java programming, Object oriented programming, classes, objects, Data types, Operators and expressions. Data encapsulation, Polymorphism, Inheritance. Overview of DBMS; Data associations - Entities, Attributes and Associations, Relationship among Entities, Representation of Associations and Relationship, Data Model classification. Structured Query Language (SQL) - Data Definition Language (DDL),Data Manipulation Language (DML).

COMPUTER APPLICATION (10)

Computer organization and architecture - Boolean algebra, Number system, Basic concepts of floating point number system, Sequential and combinational circuits, Input/Output unit, Memory Organization, ALU and Control unit, Instruction and execution cycle in CPU, Introduction to microprocessors, Interrupts, CISC and RISC Architecture.

Programming language (C++/JAVA) – Computer algorithms, Flow Charts, Encapsulation, Inheritance, Polymorphism, Building blocks, Control structures, Arrays, Pointers, Dynamic memory allocation, File management, Graphics.

Internet programming- Hyper Text Markup Language (HTML), Building static and dynamic web pages, Client side and server side scripting languages, Interaction with database.

Data structures – Representation of character, string and their manipulation, Linear list structure, Stack, Queue, Heaps, Linked list, Arrays, Tree, Graph, Sorting and Searching algorithms.

Software engineering – Requirement analysis and specification, Software Development Phases, Process models, Project structure, Project team structure, Role of metrics, Measurement, Software quality factors, Coding tools and techniques, Testing, Maintenance, Gantt charts, PERT and CPM, CASE tools.

Networking – Types of Networks, Network topology, Network Operating Systems, Network Management, Data communication and transmission, ISO-OSI reference model, TCP/IP reference model, Internet standards and services, Cryptography, Data compression, Authentication and firewalls.

Compilers and translators – Regular expression, Finite automata, Formal languages, Finite state machines, Lexical analysis, Semantic analysis, Parsing algorithms, Symbol tables, Error handling, Intermediate code optimization, Machine code generation, Machine dependent optimization.

Operating system – Process management: Inter-process communication, Process scheduling; Memory management: Swapping, Virtual memory, Paging and segmentation; Device management: Deadlocks, Semaphores; File systems –Files, Directories, Security and protection mechanisms; Distributed operating systems.

Data base management system – Definition and features, Data models, Relational database: Logical and physical structure, Relational algebra, Relational calculus, Database design, Normalization, Concurrency control, Security and integrity, Query processing and optimization, Indexes, Backup and recovery; Distributed Databases – Concepts, Architecture, Design; Structured Query Language (SQL), PL/SQL.

Numerical analysis – Interpolation, Numerical integration, Solution of ordinary differential equations, Solution of linear and non-linear system of equations; Statistical methods – Summarization of data, Frequency distribution, Measures of central tendency, Dispersion, Skewness and kurtosis, Test of significance based on normal, chi-square, t and F distributions, Curve fitting, Point estimation.

ENTOMOLOGY (11)

Position of insects in animal kingdom - their origin, phylogeny and distribution; history and basis of insect classification; distinguishing characters of insect Orders and economically important families; concept of species and speciation; rules and regulations of zoological nomenclature; morphology - external and internal; embryonic and post-embryonic development.

Insect ecology - biotic potential, biotic and abiotic resistance, effect of temperature, humidity and light on insect development and population dynamics; diapause, food chain, migration and dispersal.

Fundamentals of insect physiology, different systems, their structure and function, metabolism, sense organs, insect behaviour, host plant relationship.

Social and other beneficial insects; pests of field crops and stored food; principles of pest control; classification, mode of action and metabolism of insecticides; insecticidal residues; resistance and resurgence; parasites, predators and pathogenic microorganisms of crop pests, biological control.

Antifeedants, hormones, growth regulators, semiochemicals, host-plant resistance and genetic manipulation, insect quarantine; concept of integrated pest management; non-insect pests and their control.

ENVIRONMENTAL SCIENCES (12)

Fundamentals of components of environment - atmosphere, hydrosphere, geosphere, biosphere, pedosphere and their interaction, energy flow in ecosystems; ecosystems of the world; biogeographic regions; soil as a biological habitat; distribution and types of soil organisms and their significance in soil productivity; bio-geochemical cycles in different ecosystems; agro-ecological regions of India; global climatic changes - greenhouse gases and their impact on agriculture; biotic and abiotic interactions and their significance; natural resources - effect of anthropogenic factors on the degradation of natural resources; conventional and nonconventional sources of energy; environmental issues in agriculture and environmental impact assessment; environmental pollution and agricultural productivity; sources of soil, water and air pollution; inter-relationships of crop and animal production systems with environmental pollution in different eco-systems; management of rural water and agro-industrial effluents, environmental laws; analytical techniques for major environmental pollutants; spectrophotometry, chromatography; basic chemodynamics of environmental pollutants; chemistry of fossil fuels, fluorocarbon, nitrogen, carbon, halogens, phosphorus, heavy metals and their compounds; pesticides and other hazardous chemicals, basic photochemistry.

FLORICULTURE AND LANDSCAPE ARCHITECTURE (13)

Importance and scope of floriculture, garden designs and styles, lawns and their management; origin, classification and description of commercially important floricultural crops; factors affecting growth and flowering of ornamental plants; methods of propagation including tissue culture; growing of cut flower crops under protected conditions; pre-and post-harvest care of cut flowers; recent advances in production technology for rose, chrysanthemum, gladiolus, carnation, orchids, jasmines, tuberose, marigold and antirrhinum; growing of bougainvilleas.

Role of male-sterility, self-incompatibility, polyploidy and mutations in the evolution of new varieties of flowers; heterosis breeding; male-sterility and its use in the production of F1 hybrids; breeding for disease resistance; use of antitranspirants in increasing shelf-life of plants and flowers; role of growth regulators in ornamental plants.

Important statistical designs; methods of their statistical analysis; general principles of fruits and vegetable production, major methods of preservation and processing of horticultural and ornamental crops.

FRUITS SCIENCE (14)

Area and production of fruits, climatic and soil requirement, cultivation practices of major fruit crops like mango, citrus, banana, grape, papaya, guava, pineapple, loquat, phalsa, jackfruit, mangosteen, sapota, cashew nut, ber, pomegranate, date palm, aonla and temperate fruits like apple, pear, peach, almond, plum, apricot and cherry.

Principles of pruning and training, weed control; modern methods of propagation including micropropagation and use of growth regulators in fruit crops; water management; classification of fruit crops; use of biofertilizers; rootstocks and high density orcharding.

Improvement of plant types of important fruit crops; physiological manipulations for overcoming problems likebiennial bearing, spongy tissue, malformation, necrosis and black tip in mango; delayed maturity and uneven ripening in grapes and granulation in citrus.

Important statistical designs; methods of their statistical analysis; general principles of flower and vegetable production; major methods of preservation and processing of horticultural crops.

GENETICS (15)

Structure and function of cell and cell organelles, cell cycle; mitosis and meiosis; nucleic acids - their structure; Mendelian principles; chromosome structure and organization; types of chromosomes; chromosome function; linkage and crossing over - theories and molecular mechanism; recombination and gene mapping in diploids, fungi, bacteria, and human; ploidy variations - euploids and aneuploids; chromosomal aberrations; extrachromosomal inheritance; gene mutation-mechanism, induction; gene concept; complementation, genetic fine structure; genetic code, information transfer and protein synthesis, gene regulation and gene manipulation; gene transfer technology; origin and evolution of important crop plants like wheat, rice, maize, sugarcane, potato, brassica, cotton, etc.

Genetic basis of plant breeding; pure line selection; male sterility and incompatibility and their use in plant breeding; pedigree selection, mass selection and backcross method of selection; heterosis; plant introduction and exploration and their role in plant breeding; breeding for disease, insect and pest resistance; role of interspecific and intergeneic hybridisation; population improvement procedures; recurrent selection techniques; combining ability and its relationship with the components of gene action; seed production techniques; selection methods and changes in gene frequencies; mutation and its role in breeding; use of biotechnology in plant breeding. Molecular markers and their applications in genetic analysis and plant breeding.

MICROBIOLOGY (16)

Origin and development of microbiology; classification of bacteria, fungi, algae, protozoa; microscopy; methods of isolation, pure cultures, enumeration, sterilization, preservation; morphology and reproduction in bacteria, fungi, actinomycetes, algae, viruses.

Microorganisms in food, fermented foods; spoilages of food; food - borne diseases; microbial pollution of air and water; water purification; energy and metabolic pathways in microorganisms; fermentation and industrially useful microbial processes - citric acid, lactic acid, ethanol, vinegar, production of antibiotics, enzymes, vitamins, amino acids; mutations and genetic recombination, transformation, transduction and conjugation; soil microorganisms and their activities; rhizosphere and phylloshpere; microbial association, microbial decomposition of organic wastes, composting and biogas; nitrification and denitrification; symbiotic and non-symbiotic nitrogen fixation; microbial transformation of phosphates; use of microorganisms and biofertilizers.

MOLECULAR BIOLOGY AND BIOTECHNOLOGY (17)

Structure and organization of prokaryotic and eukaryotic cells; organization and expression of prokaryotic and eukaryotic genome; concept of gene; quantitative trait loci, mutation; genetic recombination; transformation; transduction; conjugation; structure, function and regulation of genes in pro- and eukaryotes; transcription and translation; recombinant DNA, restriction enzymes, vectors, plasmids, cosmids and bacteriophages, expression vectors, cloning strategies, construction and screening of genomic and cDNA libraries, nucleic acid hybridisation and DNA sequencing; restriction fragment length polymorphism; monoclonal antibodies and their application; enzyme engineering; genetic transformation of eukaryotes; crop improvement through genetic engineering; role of tissue

culture in crop improvement; microbes in agriculture and industry; structure and function of proteins, nucleic acids, carbohydrates, lipids, enzymes; metabolism, glycolysis, citric acid cycle; respiration, bioenergetics; nucleic acid and protein biosynthesis; photosynthesis, nitrogen fixation.

NEMATOLOGY (18)

History of nematology; importance of nematodes in agriculture and public health; techniques in nematology; broader classification of nematodes, important plant parasitic nematode genera and their identification, principles of classification; gross morphology of nematodes.

Biology of nematodes; physiology of digestion; intermediary metabolism and excretion in nematodes; symptomatology, histopathology and host specialization.

Important plant diseases by nematodes; ecological factors influencing nematode activities and population dynamics; principles of nematode control and nematode management.

PLANT GENETIC RESOURCES (19)

Biodiversity and agricultural intensification; origin and history of agriculture; ecosystem diversity, ecological basis of genetic variations and adaptation; domestication, introduction and adaptation of economically important plants; centres of crop plant origin and diversity; taxonomy of cultivated plants; origin, evolution, global distribution and economic use of important cereals, pulses, oilseeds, fruits, vegetables, commercial crops and medicinal plants; Indian Gene Centre; genetic variation in crop plants and management of germplasm collections - principles of collecting plant genetic resources (PGR) - sampling strategies, parameters of genetic diversity; principles and strategies of germplasm regeneration - considerations for regeneration of self and cross-pollinated crops; characterization, diversity analysis and evaluation of plant germplasm using morphological, biochemical and molecular approaches; strategies of PGR conservation - *ex situ* and *in situ* conservation, biotechnological approaches for conservation - *in vitro* conservation, cryopreservation; seed structure, physiology, biochemistry and storage biology; policy issues - exchange of PGR, plant quarantine, IPR related aspects; national and international programmes, global plant genetic resources networks.

PLANT PATHOLOGY (20)

Landmarks and pioneers of plant pathology; theory of microscopy and staining; structural and physiological differences amongst fungi and fungi like organism, bacteria, rickettsias, phytoplasma and spiroplasma, viruses and viroids; principles of culturing and preservation of pathogens; characteristic symptoms; host-parasite relationships and its basis; symbiosis; economically important diseases of crop plants induced by fungi and fungi like organism, bacteria, rickettsias, phytoplasma and spiroplasma, viruses and viroids; phanerogamic parasites, non-parasitic diseases; nutrition, growth, reproduction, life cycle, ultrastructure, genetics and classification of microorganisms; Mendelian principles; cell structure; seed germination; origin of life and evolution; beneficial microorganisms including mycorrhiza; variation in phytopathogens and their ecology; introductory epidemiology; transmission and detection of pathogen; host resistance; seed -borne pathogens and plant quarantine; chemical and biological control, integrated management practices.

PLANT PHYSIOLOGY (21)

Atoms, molecules and ions; molarity, molality and normality; pH, buffers, solutions and colloids; permeability, diffusion and osmosis; cell structure and function; structure and metabolic role of cell organelles; structure and function of chloroplast; photosynthetic pigments, photosystems, electron transport, ATP synthesis, C3, C4 and CAM pathways; redox potential; photorespiration, chemosynthesis, photosynthetic efficiency, glycolysis, HMP, TCA and glyoxylate cycles; macro - and micro-nutrient elements and their functions, deficiency symptoms, role in metabolism; characterization, biosynthesis, isolation and role of plant hormones; enzyme - mode and mechanism of action; concept

of water status, water potential and its components, water uptake, transpiration, stomatal physiology, xylem and phloem transport; photoperiodism, vernalization and flowering, florigen concept, phytochrome; nitrogen metabolism including nitrate reduction, ammonia assimilation, transamination, protein synthesis, nitrogen fixation; sulphur metabolism; fatty acid synthesis and degradation.

Abscission and senescence; seed physiology; dormancy; growth analysis, measurement of key growth functions such as NAR, LAI, RGR, growth response in relation to environmental factors; crop canopies and light utilization; source-sink relationship, dry matter partitioning; physiological basis of crop productivity - case histories of some crop plants viz, cereals, grain legumes and oilseeds; environmental stresses viz, high and low temperature, light, water, salinity, alkalinity, their terminology and measurement techniques; basic principles of methodology/instrumentation in plant physiological research e.g., chromatography, spectroscopy, centrifugation, radioactivity; electrophoresis, hydroponics; sex expression; phytotronics; environmental pollution, green house effects; foliar nutrition, tissue culture; post harvest physiology, plant physiology in relation to molecular biology.

POST HARVEST TECHNOLOGY (22)

Choose any one the following sub-disciplines

i. Post Harvest Technology for Horticultural Crops

Role of fruits and vegetables in human nutrition; knowledge of post-harvest physiology with special reference to ripening; role played by ethylene, respiration and transpiration.

Biochemical changes in fruits and vegetables; important nutrients and enzymes associated with fresh and stored fruits and vegetables; storage of fresh fruits, vegetables and flowers; various methods of fruit and vegetable preservation such as heat processing, drying, dehydration, refrigeration, freezing and chemical preservation.

Principal methods for control of microorganisms; nature of microorganisms associated with fermented fruits, vegetables and their products, spoilage in canned fruits and vegetable and their control measures, laboratory methods for quality control; bacterial diseases and food poisoning; food laws; utilization of horticultural wastes;

Important statistical designs and methods of their statistical analysis; general principles of fruit, flower and vegetable production.

ii Post Harvest Engineering and Technology

Thermodynamics applied to processing. Fluid flow analyses, Test of hypothesis, Multiple regression, Similitude and Dimensional analysis, Instrumentation involved in food engineering and fundamentals of computers.

Losses at different stages of the food chain, Grading, Cleaning and Sorting, Shelling, Dehusking and Decorticating, Milling and polishing. Parboiling, Drying, Size reduction, Granulation and briquetting, Crystallization, Filtration, Evaporation, Distillation, Mixing, Clarification and Densification. Coagulation, Washing, Sizing and Mechanical separation. Sedimentation, Pressing and Expelling. Pelletization, Extrusion, Stabilization and Cryogenics, Agricultural commodity handling technology, Handling of agricultural wastes, Handling of value added products, Grain storage structures, On-farm and commercial storage structures for agricultural produce.

Machineries for processing of agricultural products - cereals, pulses, oilseeds, fruits and vegetables. Cost scheduling and appraisal. PERT and CPM techniques. Design of structure and equipment for agricultural product handling including feed and waste. Design of heat exchangers, dryers, humidifiers, crystallizers, evaporators, separators, filters, refrigeration and milling equipments.

SEED SCIENCE AND TECHNOLOGY (23)

Cell structure and function; cell division; pollination, fertilization and embryogenesis; apomixis; Mendelian principles; linkage; recombination and gene mapping; ploidy variations - euploids and aneuploids; chromosomal aberrations; extra-chromosomal inheritance; mutation; genetic basis of plant breeding; pure line, pedigree and mass selection; backcross and recurrent selection techniques; heterosis and combining ability; male sterility and incompatibility and their use in plant breeding and hybrid seed production; chemical composition of seeds; biosynthesis of carbohydrates, proteins and fats; mechanism and factors determining seed germination and dormancy; germination inhibitors and promoters; endogenous hormonal regulation of germination and dormancy; breaking of dormancy; seed vigour and viability; seed quality concept; system of seed quality control; testing, release and notification of varieties, deterioration of varieties; maintenance of genetic purity; area of seed production; management of hybrid seed production - isolation and synchronization of flowering; role of insect pollinators and their efficiency; factors responsible for mechanical injury to seed; seed legislation; seed certification - concept and procedures; measurement of seed quality; metabolic changes associated with seed deterioration; seed packaging, storage and marketing; insect ecology; principles of insect control in field crops; integrated pest management; fumigation and chemical treatment for pest control in store; fungal, bacterial and viral seed borne diseases of cereals, pulses, oilseeds and vegetables and their control; seed moisture; seed drying and processing; history of seed industry in India; national and international organisations for seed quality control and trade.

SOIL SCIENCE AND AGRICULTURAL CHEMISTRY (24)

Rocks and minerals; mineral weathering and soil formation; classification of soils, major soils of India; principal silicate structures; nature and properties of organic and inorganic constituents of soils, ion exchange phenomenon; activity of ions in soil system; fixation and release of nutrients.

Soil fertility evaluation; movement of water; problem soils, soil-related constraints in crop production and remedial measures, soil amendments; soil and water conservation; sampling and analytical procedures for soils, plants, water, manures, fertilizers and soil amendments; quality of irrigation water; fertilizer recommendations; soil organic matter, soil microflora; carbon, nitrogen and phosphorus cycles; biofertilizers; phosphate solubilization; Darcy's law; Fick's law, steady and transient state diffusion in soils.

Essential plant nutrients; manures; utilization of organic wastes and industrial by-products; fertilizers and their production, properties and usage; secondary and micronutrients.

VEGETABLE SCIENCE (25)

Area and production of vegetable crops in India, climatic and soil requirements, seed production techniques in vegetable crops and related problems.

Origin, classification, cytogenetics, floral biology and breeding behaviour of different vegetables; methodology for the improvement of different self-and cross-pollinated vegetable crops including breeding for disease and insect resistance; Mendel's laws of inheritance.

Role of different nutrients, their deficiency symptoms and remedial measures; improved vegetable production technology.

Important statistical designs and methods of statistical analysis general principles of fruits and flower production; major methods of preservation and processing of horticultural crops.

WATER SCIENCE AND TECHNOLOGY (26)

History of water conservation; hydrometeorological resources of India and the world; physical, chemical, biological properties of water; water resources of India; irrigation development in India; command area development; Basic concepts of soil and fluid mechanics; infiltration; seepage; Darcy's law; Stokes' law; Bernoulli's theorem; hydraulic conductivity; surface tension; soil water flow; composition of atmosphere and its constituents; climate characterization, climatic change, flood, monsoon; rain, water harvesting, ground water recharge and conservation; microclimate; various types of droughts, drought indices, climatic water balance, surface and ground water quality; national and international water quality standards; irrigation with poor quality water; water purification systems/procedures for rural and urban population; Subsurface drainage system; drainage for salinity control.

Evaporation; evapotranspiration; lysimetric studies of crops; crop water requirement; plant growth processes; water stress in plant; irrigation scheduling; field water balance; soil-plant-water relationship; basic concepts of soil physics, irrigation methods, irrigation efficiencies; water distribution networking (large and moderate scale); pressurized irrigation system and its design.

Ground water hydraulics; isotope hydrology; application of stable and radioisotopes in water resources development; geophysical techniques in ground water; surface hydrology; hydrometeorology; watershed based water management; Soil and water conservation practices; role of integrated water resource management for sustainable development; degradation of soil and water resources and their mitigation measures.

Water rights; water laws; water disputes; water pricing; water users associations; use of remote sensing and

GIS in water resource management; Decision support system, expert system for planning and operation ofwater resources.

17. INSTRUCTIONS FOR FILLING UP ONLINE APPLICATION FORM

i) Candidate seeking admission in Ph.D. can apply online through a link available on the IARI website: www.iari.res.in.

ii) Before applying Online, candidates are advised to go through this INFORMATION BULLETIN and also the help manual available on the Indian Agricultural Research Institute (IARI) website (www.iari.res.in).

iii) Before filling the Online Application Form the candidates are required to get the Demand Draft of requisite fee (Rs. 1000/- for Gen/OBC category and Rs. 500/- for SC/ST/PC category) prepared from any branch of nationalized bank in favour of **Director, IARI, payable at New Delhi** and fill its details in the Online Application Form.

iv) Before filling the Online Application form, the candidates must possess the following:

   a. Scanned passport (pp) size photograph of less than 100 kb (JPEG format)

   b Demand Draft of requisite fee.

   c. Signature in JPEG format of less than 100 kb

v) The candidates are required to fill the online application form and save it.

vi) After successful submission, the candidate should take a printout of the online submitted Application Form and send the hard copy of it to **Registrar, PG School, IARI, New Delhi -12** along with self attested copies of the following documents:

- Matriculation (X) for proof of Date of Birth.
- Master's degree certificate and marks sheet.
- SC/ST/OBC/PC certificate (whichever is applicable).

- Certificate required from candidates appearing for M.Sc./M.Sc.(Ag.)/M.E. final year examination.
- Original Demand Draft in favour of Director, IARI, payable at New Delhi.

vii) The hard copy i.e. the printout of online application form duly signed by the candidate along with the required documents (as mentioned in item No. vi above) **must reach the Registrar, PG School, IARI, New Delhi-110012 on or before March 14, 2016.**

viii) Hard copies received after the last date at the IARI, New Delhi will be rejected.

ix) Please note that fee submitted through any other mode than Demand Draft, will be rejected.

x) In order to avoid last minute rush, the candidates are advised to apply early enough. The IARI will not be responsible for network problems or are postal delay in submitting the hard copy of the application form along with the required documents or any other problems of this nature in submission of an online application during last days.

xi) All incomplete Application Forms will be rejected.

Steps to Fill Online Application Form

Before filling an online application form, candidates are advised to make payment of requisite amount through Demand Draft only in favour of Director, IARI, payable at New Delhi.

Step 1: Create an Account in IARI Admission Web portal (www.iari.res.in) by using your existing Email ID.

Step 2: Login to your account with your Email-ID and password provided in order to start filling the Online Application Form.

Step 3: Candidate needs to fill the following details:

- Applicant Details
- Discipline Details
- Choice of Examination Center from the cities namely; Bhopal, Bangalore, Coimbatore, Delhi, Guwahati, Hyderabad,Kolkata, Pune, Udaipur, and Varanasi.
- Examination Details
- Employment History

Step 4 (i): Candidates applying for the discipline of Agricultural Engineering should give their option for IARI, New Delhi or CIAE, Bhopal only or Both.

(ii): Candidates applying for the discipline of Horticulture or Post Harvest Technology (Post Harvest Technology of Horticultural Crops) should give their options for IARI, New Delhi or IIHR, Bengaluru only or Both.

Note: The details once submitted cannot be changed later on. Therefore, ensure that you have filled in the correct and complete information before submission.

ANNEXURE - I

SPONSORED FOR ADMISSION UNDER FACULTY UPGRADATION SCHEME AND ICAR IN-SERVICE NOMINEES SCHEME

Declaration by the Employer of the Candidates

(In the case of candidates employed, his/her application shall not be considered valid unless the declaration is completed in full by the employer or the Head of the Institution).

i. Certified that the particulars given by Dr./Mr./Ms.....(Name, Designation) in this form have been verified and found correct.

ii. Dr./Mr./Ms.....(Name, Designation) will be granted Deputation Leave/Study Leave/Extra-Ordinary Leave or he/she will be given a scholarship or stipend of the value of Rs._____per month. On completion of the training, he/she will be required to serve this Department / Institute / University for a period of_____years.

iii. If selected for admission, the candidate will be relieved to join the course at IARI/CIAE/IIHR as directed by the IARI on July 29, 2016.

iv. If selected for the award of IARI (or other) fellowship, there will be no objection to his/her receiving the scholarship and contingency amounts attached there to subject to the following conditions.

(a) _____

(b) _____

(c) _____

v. Certified that I am competent to take the decision to sponsor him/her on the terms and conditions mentioned above/the decision to sponsor him/her on the above terms and conditions has been taken by and is being communicated under the direction of who is the competent authority.

vi. This University/Organization/Department undertakes to pay dues outstanding against the candidate and not paid by him.

Signature _____

Designation _____

Address _____

(With Official Seal)

ANNEXURE - II

SPONSORED FOR ADMISSION UNDER RESERVED SEATS FOR ICAR EMPLOYEES CERTIFICATE REQUIRED FOR ADMISSION UNDER ICAR IN-SERVICE NOMINEES SCHEME ONLY

The ICAR In-Service Nominees have to submit the following certificate also in addition to the declaration by the employers of the candidates (Annexure-I).

It is certified that the sponsored candidate

Name_____

Designation_____

Office Address_____

_____

has qualified the ICAR Senior Fellowship with/without fellowship.

Signature_____
Deputy Director General (Education)
ICAR, New Delhi
(with Seal of Office)

ANNEXURE – III

FORM OF CERIFICATE TO BE PRODUCED BY CANDIDATES BELONGING TO OTHER BACKWARD CLASSES (OBC) CATEGORY AS PER GOVT. OF INDIA NOTIFICATION

This is to certify that Shri/Smt./Kum._____Son./Daughter of Shri/Smt._____of Village/ Town_____District/Division_____in the_____State belongs to the_____Community which is recognized as a backward class under.

i) Resolution No.12011/68/93-BCC© dated 10.9.93 published in the Gazette of India Extraordinary Part I Section I No.186 dated 13.9.93.

ii) Resolution No.12011/9/94-BCC© dated 19.10.94 published in the Gazette of India Extraordinary Part I Section I No.163 dated 20.10.94.

iii) Resolution No.12011/7/95-BCC© dated 24.5.95 published in the Gazette of India Extraordinary Part I Section I No.88 dated 20.5.95.

iv) Resolution No.12011/96/94-BCC© dated 9.3.96.

v) Resolution No.12011/44/96-BCC© dated 6.12.96 published in the Gazette of India Extraordinary Part I Section I No.210 dated 11.12.96.

vi) Resolution No.12011/13/97-BCC© dated 3.12.97.

vii) Resolution No.12011/99/94-BCC© dated 11.12.97.

viii) Resolution No.12011/68/98-BCC© dated 27.10.99.

ix) Resolution No.12011/88/98-BCC© dated 6.12.99 published in the Gazette of India Extraordinary Part I Section I No.270 dated 6.12.99.

x) Resolution No.12011/36/99-BCC© dated 4.4.2000 published in the Gazette of India Extraordinary Part I Section I No.71 dated 4.4.2000.

xi) Resolution No.12011/44/99-BCC© dated 21.9.2000 published in the Gazette of India Extraordinary Part I Section I No.210 dated 21.9.2000.

xii) Resolution No.12015/9/2000-BCC© dated 6.9.2001.

xiii) Resolution No.12011/1/2000-BCC© dated 19.6.2003.

xiv) Resolution No.12011/4/2004-BCC© dated 13.1.2004.

xv) Resolution No.12011/9/2004-BCC© dated 16.1.2006 published in the Gazette of India Extraordinary Part I Section I No.210 dated 16.1.2006.

xvi) Resolution No.12011/14/2004-BCC© dated 12.3.2007 published in the Gazette of India Extraordinary Part I Section I No.186 dated 12.2007.

Shri/Smt./Kum._____and /or his family ordinarily reside(s) in the_____District/Division of _____ State. This is also to certify that he/she does not belong to the persons/sections (Creamy Layer) mentioned in Column 3 of the Schedule to the Govt of India, Department of Personnel & Training O.M.No.36012/22/93-Estt.(SCT) dated 8.9.93 which is modified vide O.M.No.36033.3.2004 Estt.(Res.) dated 9.3.2004.

Dated: District Magistrate/Deputy Commissioner

(Seal)

Note:

a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the People Act. 1950.

b) The authorities competent to issue Caste Certificates are indicated below.

i) District Magistrate/Additional Magistrate/Collector/Deputy Commissioner/Additional Deputy Commissioner/Deputy Collector / Ist Class Stipendiary Magistrate/Sub-Divisional Magistrate/Taluka Magistrate/Executive Magistrate/Extra Assistant Commissioner (Not below The Rank of Ist Class Stipendiary Magistrate).

ii) Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate.

iii) Revenue Officer not below the rank of Tehsildar and

iv) Sub-Divisional Officer of the area where the candidate and/or his family resides.

Declaration/undertaking – for OBC candidates only

I,_____son/daughter of Shri_____resident of Village/Town/City_____District _____ Sate hereby declare that I belong to the_____Community which is recognized as a Backward Class by the Govt. of India for the purpose of reservation in services as per orders contained in Department of Personnel and Training Office Memorandum No.36012/22/93-Estt.(SCT), dated 8.9.1993.It is also declared that I do not belong to persons/Sections (Creamy Layer) mentioned in Column 3 of the Schedule to the above referred Office Memorandum, dated 8.9.1993, which is Modified vide Department of Personnel and Training Office Memorandum No.36033/3/ 2004 Estt.(Res.) dated 9.3.2004.

Place_____ Signature of the Candidate

Date _____

*Declaration/undertaking not signed by candidate will be rejected.

*False declaration will render the applicant liable for termination of registration at any time.

Creamy Layer Definition

OBC Creamy layer is defined comprehensively at http://ncbc.nic.in/html/creamylayer.html

All candidates for the OBC reserved seats should make sure that they do not satisfy any of the creamy layer criteria as listed in the website. Some general exclusions for quick reference (no way comprehensive) are as follows.

1. Any of the parents holds a constitutional position in Govt. of India
2. Any one of the parents is a class I officer.
3. Both the parents are class II Officers.
4. Any one of the parents is employed in an equivalent rank to class I officer or both parents equivalent to class II officer in a public sector, insurance companies, banks, universities or in other organizations.
5. Land holdings on irrigated land is 85% or more of the statutory ceiling area.
6. Parents income is as per Govt. of India directives.

ANNEXURE - IV

FORM OF CERTIFICATE TO BE PRODUCED BY A CANDIDATE BELONGING TO SC/ST CATEGORY IN SUPPORT OF HIS/HER CLAIM

FORM OF CASTE CERTIFICATE

1. This is to certify that Shri/Smt./Kumari_____son/daughter of _____ village/town*_____in District/Division_____of the State/ Union Territory*_____belongs to the_____Caste/Tribe* which is recognised as SC/ST* under

The Constitution (Scheduled Caste) Order, 1950; The Constitution (Scheduled Tribe) Order, 1950; The Constitution (Scheduled Caste) Union Territories Order, 1951; The Constitution (Scheduled Tribes) Union Territories Order, 1951; as amended by the SCs and STs List (Modification) Order, 1950; the Bombay Reorganisation Act, 1960; the Punjab Reorganisation Act, 1966; the State of HP Act, 1970; the North Eastern Areas (Reorganisation) Act, 1971 and the SCs and STs Order (Amendment) Act, 1976; The Constitution (Jammu & Kashmir) SC Order, 1956; The Constitution (Andaman & Nicobar Islands) SC Order 1959 as amended by SCs and STs Order (Amendment) Act, 1976; The Constitution (Dadra and Nagar Haveli) SCs Order, 1962; The Constitution (Dadra and Nagar Haveli) STs Order, 1962; The Constitution (Pondicherry) SCs Order, 1964; The Constitution Scheduled Tribes (Uttar Pradesh) Order, 1967; The Constitution (Goa, Daman & Diu) SCs Order, 1968; The Constitution (Nagaland) STs Order, 1970; The Constitution (Sikkim) SCs Order, 1968.

2. Applicable in the case of SC/ST persons who have migrated from the State/Union Territory Administration.

The certificate is issued on the basis of the SC/ST certificate to Shri/Shrimati*_____father/ mother* of Shri/Shrimati/Kumari*_____of village/town*_____in District/ Division*_____of the State/Union Territory*_____who belongs to the_____caste/tribe* which is recognised as Scheduled Caste/ Scheduled Tribe* in the State/Union Territory* issued by the_____(Name of the prescribed authority) vide their No._____dated_____

3. Shri/Shrimati/Kumari*_____and/or* his/her family ordinarily reside(s) in Village / Town*_____of District_____of State/ Union Territory of _____

Signature_____
** Designation_____
(with Seal of Office)

Place_____State/Union Territory
Date _____

* Please strike off the words which are not applicable.
\# Please quote specific Presidential Order.
% Strike off the paragraph which is not applicable.

NOTE: The term "Ordinarily reside(s)" used here will have the same meaning as in Section 20 of the Representation of the People's Act, 1950.

** List of authorities empowered to issue SC/ST certificate:

1. District Magistrate/Additional District Magistrate/Deputy Commissioner/Additional Deputy Commissioner/ Deputy Collector / 1st Class Stipendiary Magistrate/City Magistrate/Sub-divisional Magistrate / Taluka Magistrate / Executive Magistrate / Extra Assistant Commissioner not below the rank of 1st Class Stipendiary Magistrate.
2. Chief Presidency Magistrate/Additional Chief Presidency Magistrate/Presidency Magistrate.
3. Revenue Officers not below the rank of Tehsildar.
4. Sub-Divisional Officer of the area where the candidate and/or his family normally resides.
5. Administrator/Secretary to Administrator/Development Officer (Lakshadweep Islands).

ANNEXURE - V

FORM OF CERTIFICATE TO BE PRODUCED BY A CANDIDATE BELONGING TO PHYSICALLY CHALLENGED CATEGORY IN SUPPORT OF HIS/HER CLAIM

FORM OF PHYSICALLY CHALLENGED CERTIFICATE

This is to certify that Shri/Smt./Kumari_____son/daughter of_____of village/town_____in District/ Division_____of the State/Union Territory_____belongs to the Physically Challenged category because_____ _____and he/she is fit for undergoing the Ph.D. programme in Agricultural Sciences at IARI/CIAE/IIHR.

Signature Name and Seal of the
Medical Superintendent
of the Govt. Hospital

NOTE: The criteria for 'Physically Challenged' shall be as applicable under the rules and regulations of ICAR/ Government of India for pursuing post-graduate education in agriculture.

ANNEXURE - VI

FORM OF CERTIFICATE TO BE PRODUCED BY CANDIDATES WHO ARE APPEARING FOR THEIR MASTER'S FINAL EXAMINATION 2016

This is to certify that Shri/Smt./Kumari_____son/daughter of_____of village/town_____in District Division_____of the State/Union Territory is a final year student of M.Sc./M.Sc.(Ag)/M.Tech. M.E. in the discipline of_____and is likely to appear for his/her final year examination, 2016.

Signature and seal
Dean/Registrar of the University
or Principal of the College

NOTE : This certificate must be issued only by the Principal of the College/Registrar or Dean of the University where the student is studying in the final year of his / her Master's Degree.

ANNEXURE-VII

POST GRADUATE SCHOOL

SIDE - 1

Indian Agricultural Research Institute, New Delhi
Ph.D. Entrance Examination for Session 2016-2017
Date of Examination : April 24, 2016

OMR ANSWER SHEET

1. ROLL NO.	2. CENTRE OF EXAM. (Write name of the city only)	3. DISCIPLINE NAME	4. DISCIPLINE CODE

GENERAL INSTRUCTIONS

1. Write all information under Serial Nos. 1 - 4 on Side - 1 in CAPITAL with a ball point pen.
2. Write all information in boxes 5 to 8 on Side - 2 of the Answer Sheet and darken the appropriate circles with an HB Pencil.
3. Please put your signature with a ball point pen in box 10 on side 1 of the Answer Sheet.
4. Shade the circles on Side - 2 with an HB Pencil only. For detailed instruction in this regard see INSTRUCTIONS FOR MARKING ANSWERS given below.
5. Please note that in this Answer Sheet the questions are divided into two parts. The upper part has multiple choice type questions progressing from top to bottom in five columns from Question Nos. 1-130. Each question has four answering options. Please shade the correct answer as given below.

   In the lower part three are matching type questions (Question No. 131 - 140) progressing from left to right. Each question has five sub questions from (i) - (v) with answering options (a) - (e). Please shade the correct answer as shown in the example below.
6. GEN = General Category; OBC = Other Backward Class; SC = Scheduled Caste; ST = Scheduled Tribe and PC = Physically Challenged
7. Sub - discipline codes are only for the candidates of Horticulture and Agricultural Engineering.
8. Answer Question Nos. in the space provided in the Question booklet.
9. Please return the OMR Sheet and Question Booklet to the invigilator after completion of the examination.

EXAMPLE FOR Multiple Choice Type Question Nos. (1 - 130)

ⓐ● ⓒ ⓓ ⓔ

EXAMPLE FOR Cross Matching Type Question Nos. (131 - 140)

(i)	ⓐ	ⓑ	●	ⓓ	ⓔ
(ii)	ⓐ	●	ⓒ	ⓓ	ⓔ
(iii)	ⓐ	ⓑ	ⓒ	●	ⓔ
(iv)	ⓐ	ⓑ	ⓒ	ⓓ	●
(v)	●	ⓑ	ⓒ	ⓓ	ⓔ

INSTRUCTIONS FOR MARKING ANSWERS

1. Use HB Pencil only for shading the circles on Side - 2 of the Answer Sheet.
2. Darken the circle completely so that the letter / number inside the circle is not visible.
3. Darken only ONE CIRCLE for each answer as shown in the example below. If you darken more than one circle, your answer will be treated as wrong.

ⓐⓑ●ⓓⓔ	⊘ⓑⓒⓓ	ⓐⓧⓒⓓ	ⓐⓑⓒ◐
Correct Method	Wrong Method	Wrong Method	Wrong Method

4. If you wish to change an answer ERASE completely the already darkened CIRCLE, then make a fresh mark.
5. Shade the CIRCLES only in the space provided. Please do not make any stray marks on the Answer Sheet.
6. Rough work MUST NOT be done on the Answer Sheet. Use your Test Booklet for doing the rough work.

SIDE - 2

5. Roll Number

6. Category

GEN ①
OBC ②
SC ③
ST ④
PH ⑤

7. Discipline Code

8. Sub Discipline Code

9. Answers

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	a b c d	27	a b c d	53	a b c d	79	a b c d	105	a b c d
2	a b c d	28	a b c d	54	a b c d	80	a b c d		a b c d
3	a b c d	29	a b c d	55	a b c d	81	a b c d		a b c
4	a b c d	30	a b c d	56	a b c d	82	a b c d	10	a b c d
5	a b c d	31	a b c d	57	a b c d		a b c d	109	b c d
6	a b c d	32	a b c d	58	a b c d	84	b c d	110	a b c d
7	a b c d	33	a b c d	59	a b c d	85	c d	11	a b c d
8	a b c d	34	a b c d	60	a b c d	86	c d	112	a b c d
9	a b c d	35	a b c d	61	a d	87	a	113	a b c d
10	a b c d	36	a b c d	62	a d	88	a b d	114	a b c d
11	a b c d	37	a b c d		a b	89	a b c d	115	a b c d
12	a b c d	38	a b c d		a b c	90	a b c d	116	a b c d
13	a b c d	39	a b c d		b c d	91	a b c d	117	a b c d
14	a b c d	40	a b c d	66	b c d	92	a b c d	118	a b c d
15	a b c d	41	a	67	c d	93	a b c d	119	a b c d
16	a b c d	42	a	68	a d	94	a b c d	120	a b c d
17	a b c d	43	a b c d		a c d	95	a b c d	121	a b c d
18	a b c d	44	a b c d		a b c d	96	a b c d	122	a b c d
19	a b c d	45	a b c d	71	a b c d	97	a b c d	123	a b c d
20	a b c d		a b c d	72	a b c d	98	a b c d	124	a b c d
21	a b c d		b c d	73	a b c d	99	a b c d	125	a b c d
22	a b c d	48		74	a b c d	100	a b c d	126	a b c d
23	a c d	49	a c d	75	a b c d	101	a b c d	127	a b c d
24	a b c d	50	a b c d	76	a b c d	102	a b c d	128	a b c d
		51	a b c d	77	a b c d	103	a b c d	129	a b c d
		52	a b c d	78	a b c d	104	a b c d	130	a b c d

Q.No. 131		Q.No. 132		Q.No. 133		Q.No. 134		Q.No. 135	
(i)	a b c d e	(i)	a b c d e	(i)	a b c d e	(i)	a b c d e	(i)	a b c d e
(ii)	a b c d e	(ii)	a b c d e	(ii)	a b c d e	(ii)	a b c d e	(ii)	a b c d e
(iii)	a b c d e	(iii)	a b c d e	(iii)	a b c d e	(iii)	a b c d e	(iii)	a b c d e
(iv)	a b c d e	(iv)	a b c d e	(iv)	a b c d e	(iv)	a b c d e	(iv)	a b c d e
(v)	a b c d e	(v)	a b c d e	(v)	a b c d e	(v)	a b c d e	(v)	a b c d e

Q.No. 136		Q.No. 137		Q.No. 138		Q.No. 139		Q.No. 140	
(i)	a b c d e	(i)	a b c d e	(i)	a b c d e	(i)	a b c d e	(i)	a b c d e
(ii)	a b c d e	(ii)	a b c d e	(ii)	a b c d e	(ii)	a b c d e	(ii)	a b c d e
(iii)	a b c d e	(iii)	a b c d e	(iii)	a b c d e	(iii)	a b c d e	(iii)	a b c d e
(iv)	a b c d e	(iv)	a b c d e	(iv)	a b c d e	(iv)	a b c d e	(iv)	a b c d e
(v)	a b c d e	(v)	a b c d e	(v)	a b c d e	(v)	a b c d e	(v)	a b c d e

10. CANDIDATE'S SIGNATURE

11. INVIGILATOR'S SIGNATURE

SPSI 1884

ANNEXURE - VIII

FORM OF SURETY BOND TO BE EXECUTED BY A CANDIDATE WHO IS PURSUING Ph.D. AS SENIOR RESEARCH FELLOW IN ICAR DEEMED UNIVERSITIES THROUGH A COMPETITIVE EXAMINATION

I_____Son/Daughter of_____resident of_____pursuing Ph.D. in Indian Agricultural Research Institute, deemed to be university under ICAR (hereinafter called the obligor) and Sh./Smt./Kum./_____Son/Daughter of _____(full address _____(hereinafter called surety) do hereby bind myself and my respective heirs, executors and administrators to pay to the Indian Agricultural Research Institute, Deemed University under ICAR, a society registered under the Societies Registration Act-1860 Krishi Bhawan Dr. Rajendra Prasad Road, New Delhi-110001 on demand the sum of ` 50000/- (Rupees Fifty Thousand only) together with interest thereon from the date of demand of Government rates for the time being in force on Government loans (if payments is made in a country other than India. Equivalent of the said amount in the currency of that country converted at the official rate of exchange between that country and India) and together with all costs between attorney and all client and all charges and expenses that shall or may have been incurred by the IARI.

Whereas the obligor has been pursuing Ph.D. at IARI as a result of the competitive examination held in the year 2016.

And whereas for the better protection of the IARI, the obligor has agreed to execute this bond with such condition as here under is written.

And whereas the said surety has agreed to execute this bond as surety on behalf of the above bounden

Now the Condition of the above Written Obligation is that in the event of the named obligor, Sh./Smt./Kum./_____ leaving the studies after taking admission on the basis of the competitive examination without completion of Ph.D. of 3 years or on his/her being rusticated removed from the Deemed University, the obligor and/or the Surety shall forthwith pay to the IARI as may be directed by the IARI on demand the sum of `_____(Rupees _____) together with interest thereon from the date of demand at Government rates for the time being in force on Government loans.

And upon the obligor Sh./Smt./Kum._____and _____the surety aforesaid, making such payment the above written obligation shall be void and if no effect otherwise, it shall remain in full force and virtue.

Provided always that the liability of the surety here under shall not be impaired or discharged by reasons of time being granted or by any forbearance. act or omission of the IARI or any person authorized by them (whether with or

without the consent or knowledge of the surety) nor shall it be necessary for the IARI to sure the obligor first before suing the surety Sh./Smt./Kum./ for amounts due hereunder.

The bond shall in all respect be governed by the laws of India for the time being in force and the rights and liabilities hereunder shall, where necessary, be accordingly determined by the appropriate courts in India.

Signed on dated this_____day of_____two thousand _____Signed and delivered by the obligor above named Sh./Smt./Kum. _____in the presence of_____.

Signature of the Candidate _____

Address _____

_____

Witnesses :

(Signature, Name and Address)

1. _____

2. _____

Signed and delivered by the surety above named Sh./Smt./Kum_____ in the presence of_____.

Witnesses :

(Signature, Name and Address)

1. _____

2. _____

*(In the case of married women candidate, her husband's name is to be mentioned as wife of _____

_____

Note: The following persons can also stand sureties for the students :

1. Parent/guardian of the student
2. Guide/teachers of the student
3. Sarpanch of the Village Panchayat to which the student belongs.
4. MLA
5. Local guardian of student, if any
6. Any other Central Government or State Government of Central Autonomous Bodies or equivalent status or comparable higher status employees.


HW 1098
58 YEARS
POST GRADUATE SCHOOL
1958-2016
चौवनवाँ दीक्षांत समारोह