



INFORMATION BROCHURE & PROSPECTUS

Entrance Test Based Admissions
2017-18



B.V. Sc. & A.H., B.Sc. (Hons.) Agriculture
M.Sc. Ag., M.Sc. (Community Science), M.Sc.
& M.V. Sc. Programmes



**CHAUDHARY SARWAN KUMAR
HIMACHAL PRADESH KRISHI VISHVAVIDYALAYA
PALAMPUR (H.P.) 176 062 - INDIA**

CONTENTS

Chapter No.	Subject	Page
	Important Information	i-iii
	Abbreviations	iv
	Disclaimer	vi
I	Introduction	1
II	Admission and Enrolment	4
III	Instructions/Regulations Regarding Ragging	16
IV	Guidelines Regarding Entrance Test	19
V	Fee Structure	22
Annexure		
I	Syllabi for B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture Entrance Test	28
II	Syllabi for Master's Programmes Entrance Test	40
III	Rules for admission under Sports/Co-curricular activities Sub Category	51
IV	Specimen of Online Anti Ragging Undertaking (Affidavit by the Student)	53
V	Specimen of Certificates to be supplied by the successful candidate on the day of counselling Form I : Certificate of Bonafide Himachali Form II : Certificate of Scheduled Caste Form III : Certificate of Scheduled Tribe Form IV : Certificate of serving/ex-defence personnel Form V : Certificate of Other Backward Classes Form VI : Certificate of being a Kashmiri Migrant Form VII: Certificate of Bonafide resident of Rajpur/Khalet Gram Panchayat	54
VI	Format for Medical Fitness Certificate	57
VII	Medical and Physical Fitness Standards	58
VIII	Specimen of Application Form for Admission of NRI/Children of NRI/Ward of NRI/Foreign National Candidate <i>(B.V.Sc. & A.H., B.Sc. (Hons.) Agriculture, M.Sc. Ag., M.Sc. (Community Science), M.Sc. and M.V.Sc. programmes)</i>	59
IX	Check list of certificates, etc. to be submitted with the application by NRIs/Foreign Nationals	64
X	Affidavit by NRI candidate's parent/guardian	65
XI	Specimen of Counselling Proforma	66
Other enclosure		
	Specimen of OMR Answer Sheet	68

Important Information

A. Application fee

General/OBC	Rs. 1600
SC/ST/DA	Rs. 1100
Additional fee for Self Financing Seat	Rs.1500/-(if the candidate opts in the application form)
NRIs/Foreign Nationals	Please see page 13-15

Mode of submission of application form and payment of application fee: Application form to be filled online at the University website <http://hillagric.ac.in> and application fee is also to be deposited online through payment Gateway.

B. Last date for receipt of application form

i) Online	:	15.05.2017 (All candidates except NRIs/Foreign Nationals)
ii) Offline	:	15.07.2017 (NRIs/Foreign Nationals)

C. Date of Entrance Test

B.V.Sc. & A.H. and B.Sc.(Hons.) Agriculture Programmes	:	04.06.2017
Masters' Programmes	:	18.06.2017

D. Test Centres

Programme	Centre
B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture	Chamba, Hamirpur, Mandi, Nurpur, Palampur, Rampur, Solan and Una
Masters' Programmes	Palampur

E. Venue, date and time for counselling and scrutiny of original documents

Programme	Date and Time (10.00 AM to 4.00 PM)	Venue at CSKHPKV, Palampur
B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture	06.07.2017 for General & SFS category	University Auditorium
	07.07.2017 for all other categories	
M.Sc. Ag.	14.07.2017	Office of the Dean, Postgraduate Studies
M.Sc. and M.Sc.(Community Science)	15.07.2017	
M.V.Sc.	17.07.2017	

Note:

- i. It is mandatory for a candidate to report for counselling on the specified date, time and venue and mark his/her attendance in the attendance sheet/register kept for the purpose, otherwise his/her candidature shall not be entertained and his/her right to admission shall be forfeited.
- ii. All original certificates/documents must be shown to the Counselling Committee by the candidate at the time of counselling. Simultaneously, **the candidate has also to submit a set of self attested copies of all the relevant documents alongwith counselling proforma** (to be downloaded from the University Website <http://hillagric.ac.in>) duly filled in all respects,.
- iii. The select/waiting list of the candidates after counselling will be displayed on the University website <http://hillagric.ac.in> and also on notice boards of Administrative Block and concerned College/Office of the Dean, Postgraduate Studies (in case of Masters' Programmes) of the University.
- iv. The candidates selected for admission will have to deposit the requisite fee **except hostel charges**, as given below at 'F', directly in the Comptroller's Account No. 32088116733 (IFSC: SBIN003632) at SBI, HPAU, Palampur through internet banking or any other bank transaction after declaration of select list and submit the computer generated receipt or bank receipt as a proof of deposit of fee in the Office of the concerned Dean at the time of registration (given below at 'H') up to 5.00 PM. The candidate can also deposit the fee by way of demand draft drawn in favour of Comptroller, CSKHPKV, Palampur payable at SBI, HPAU, Palampur (code 0003632) or payable at Palampur (in case of any other bank) and submit the said draft in the office of the concerned Dean on the day of registration. **On allotment of hostel accommodation, the student shall have to deposit the hostel charges directly in the Students' Welfare Officer Account No. 10640344201 (IFSC: SBIN003632) at SBI, HPAU, Palampur through internet banking or any other bank transaction and submit the computer generated receipt or bank receipt as a proof of deposit of fee in the Office of the Students' Welfare Officer.**
- v. The candidates placed in waiting list shall have to mark their attendance in the attendance sheet/register kept for the purpose, in the Office of the concerned Dean on the specified date (given below at 'H') up to 12.00 noon.
- vi. In case, the seats remain vacant after admitting/adjusting candidates from the waiting list or fall vacant thereafter, the same will be filled through walk-in-interview on the specified date (given below at 'H'). The candidates shall have to check the availability of vacant seat, if any, before the walk-in-interview on the University Website <http://hillagric.ac.in>. The following categories of candidates will be entitled to appear in walk-in-interview:
 - a. All such candidates whose names figured in the select list but did not register on the specified date due to any reason,
 - b. The waiting list candidates who either did not register in spite of a vacancy or who were too low in the merit list to be admitted, and
 - c. All other eligible candidates who have appeared in ET-2017.

IMPORTANT INSTRUCTIONS FOR ADMISSION THROUGH WALK-IN-INTERVIEW:

1. The candidates wishing to take admission through walk-in-interview will have to appear for the walk-in-interview of the respective programme(s) on specified date (given at 'H') up to 12.00 noon at the venue for counselling as indicated at 'E'. Such candidates shall have to mark their attendance in the attendance sheet/register kept there for the purpose.

2. The admission shall be made on the basis of merit list (as per mode of admission) to be drawn on the day of walk-in-interview.
3. The candidates appearing in walk-in-interview must have to bring a demand draft of requisite amount of fee **except hostel charges** (given below at "F") and **deposit the same on the spot in case they are offered a seat for admission.**
4. **On allotment of hostel accommodation**, the student shall have to deposit the hostel charges directly in the Students' Welfare Officer Account No. 10640344201 (IFSC: SBIN0003632) at SBI, HPAU, Palampur through internet banking or any other bank transaction and submit the computer generated receipt or bank receipt as a proof of deposit of fee in the Office of the Students' Welfare Officer.

vii. The Foreign students shall have to visit <http://hillagric.ac.in> / icc@hillagric.ac.in /contact at icchpkv@gmail.com with respect to any information about admission, selection, etc. Foreign students will have to submit the application form after depositing requisite application fee in **FCRA A/C No. 34854349548.**

F. Fee (in rupees) to be deposited at the time of Admission

Sr. No.	Programme	Fee to be deposited by			
		BPL girls		Others	
		Non-SFS	SFS	Non-SFS	SFS
1.	B.V.Sc. & A.H.	28776	528776	45776	545776
2.	B.Sc. (Hons.) Agriculture	17876	57876	26376	66376
3.	M.Sc. Ag.	18540	58540	30540	70540
4.	M.Sc. Ag. (Agriculture Biotechnology)	18540	83540	30540	95540
5.	M.Sc.(Community Science)	18540	58540	30540	70540
6.	M.Sc.	18540	58540	30540	70540
7.	M.V.Sc.	18540	68540	30540	80540

Note: No fee except boarding and lodging charges shall be charged from Differently Abled (DA) students. However, such students admitted against Self Financing seat shall have to pay the fee for self financing seats of the respective degree programme.

G. Mode of Admission

- i) For B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture programmes, only on the basis of Entrance Test score.
- ii) For Master's Programmes, the admission will be on the basis of Weighted Score of Entrance Test (60%) and Qualifying Examination (40%).

H. Date of Registration

Candidate from	Date of registration
Select list (University)	26.07.2017 (up to 5.00 PM)
Waiting list (University)	28.07.2017 (by 12.00 Noon)
Select List (ICAR/Foreign Nationals/NRI)	26.07.2017 to 29.07.2017 (up to 5.00 PM)
Waiting list (ICAR/Foreign Nationals/NRI)	01.08.2017 to 06.08.2017 (up to 5.00 PM)
Walk-in –interview lists (Cut-off date of Admission)	
B.V.Sc. & A.H.	08.08.2017 (by 12.00 Noon)
B.Sc. (Hons.) Agriculture	09.08.2017 (by 12.00 Noon)
M.Sc. Ag.	08.08.2017 (by 12.00 Noon)
M.Sc. and M.Sc.(Community Science)	09.08.2017 (by 12.00 Noon)
M.V.Sc.	10.08.2017 (by 12.00 Noon)

Note:

- i. On conclusion of ICAR's counseling, the ICAR seats remained vacant will be converted into University seats and be filled through Walk-in-Interview.
- ii. VCI nominee can join as and when recommended by the Veterinary Council of India.

I. Commencement of Classes

B.Sc. (Hons.) Agriculture and Masters' Programmes	:	01.08.2017
B.V.Sc. & A.H. Programme	:	01.09.2017

Note:

- i. If a candidate does not opt for Self-Financing seat at the time of filling online application form, his/her candidature for self financing seat will not be considered even in walk-in-interview.
- ii. Non-H.P. Bonafide candidates can only apply for self financing category by depositing Rs. 3100/- (Rs. 1600 + Rs. 1500/-) as application fee. In case, due to non-availability of HP Bonafide candidates, their candidature may be considered against the vacant seat(s) of HP Bonafide category, if any, at the time of walk-in-interview. In such cases, the candidates shall have to attend the walk-in-interview.

- iii. The candidates admitted to various degree programmes of the University who are eligible for availing SC/ST/DA/OBC scholarship should submit their scholarship form for the academic year 2017-18 by February, 2018 positively. The eligibility criteria in this regard may be accessed at UGC Website www.ugc.ac.in.

Enquiry

Designation	Telephone	Time (working days only)	E-mail ID
Section Officer(Academic)	01894-230394, 283119, 283120 (O), 07807214518(M)	10.00 AM to 5.00 PM	contactpetcskhpkv@hillagric.ac.in / contactpetcskhpkv@gmail.com

ABBREVIATIONS

Abbreviation	Nomenclature
ASY	Amartya Shiksha Yojana
ATIC	Agricultural Technology Information Centre
B.Sc.	Bachelor of Science
B.Sc. (HHA)	Bachelor of Science (Hospitality & Hotel Administration)
B.Sc. (Hons.) Agriculture	Bachelor of Science (Honours) Agriculture
B.Sc. (Hons.) Home Science	Bachelor of Science (Honours) Home Science
B.Sc. (Hons.) Community Science	Bachelor of Science (Honours) Community Science
B.Tech. (Food Technology)	Bachelor of Technology (Food Technology)
B.V.Sc.& A.H.	Bachelor of Veterinary Sciences & Animal Husbandry
BARC	Bhabha Atomic Research Centre
CENHRD	Center for Human Resource Development
COA	College of Agriculture
COBS	College of Basic Sciences
COHS	College of Home Science
COVAS	Dr. G.C. Negi College of Veterinary & Animal Sciences
CSIR	Council of Scientific and Industrial Research
CSKHPAU	Chaudhary Sarwan Kumar Himachal Pradesh Agricultural University
CSKHPKV	Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya
DA	Differently Abled
DEE	Directorate of Extension Education
DR	Directorate of Research
ET-2017	Entrance Test-2017
FAO	Food & Agriculture Organization
FCRA	Foreign Currency Regulation Act
FCY	Foreign Currency
GH	Guest House
GOI	Government of India
ICAR	Indian Council of Agricultural Research
ICC	International Coordination Cell
IHBT	Institute of Himalayan Bio-Resource Technology
IUC	Inter University Centres
JNU	Jawahar Lal Nehru University
M.Sc.	Master of Science
M.Sc. Ag.	Master of Science in Agriculture
M.Sc. (Community Science)	Master of Science in Community Science
M.V. Sc.	Master of Veterinary Sciences
MHRD	Ministry of Human Resource Development
NCC	National Cadet Corps
NRI	Non Resident Indian
NSS	National Service Scheme
OBC	Other Backward Classes
OCPA	Overall Credit Point Average
OGPA	Overall Grade Point Average
PC	Physics and Chemistry
PCB	Physics, Chemistry & Biology
PCM	Physics, Chemistry & Mathematics
PDC	Provisional Degree Certificate
Ph.D.	Doctor of Philosophy
Ph.D. (Community Science)	Doctor of Philosophy in Community Science
SBI, HPAU	State Bank of India, Himachal Pradesh Agricultural University
SC	Scheduled Caste
SFS	Self-Financing Scheme/Seat
ST	Scheduled Tribe
SWO	Students' Welfare Organization/Officer
UGC	University Grants Commission

VC	Vice Chancellor
VCI	Veterinary Council of India
Vet.	Veterinary

DISCLAIMER

The information contained in the Information Brochure & Prospectus is of general nature for the information of the candidates seeking admission to various Programmes of the University. It is neither an exhaustive nor a legal document. The information contained herein is believed to be correct at the time of publication/uploading. However, the University reserves the right to make any alteration without any prior notice in the provisions contained in the Information Brochure & Prospectus where upon, the University will not be responsible for any hardship or expenses incurred by any candidate or any other person on account of such changes, additions, omissions or errors, no matter how they are caused.

The students are advised to refer to the Academic Regulations and other Statutory/Administrative provisions applicable on a particular point of time on various aspects, viz. system of education, residence in the University Hostels, enrolment in NSS/NCC, award of scholarships, stipends, fellowships, medals, certificates of honour and conduct in the University premises, etc.

The students in the University should also note that the provisions of the Act, Statutes, Academic Regulations and other Legal/Administrative notifications, orders, instructions, guidelines, etc. can be changed by the University at any time without assigning any reason or prior notice.

Though every effort shall be made to stick to and follow the instructions and schedule of dates given in this Information Brochure & Prospectus, yet under certain compelling circumstances, if there has to be any deviation, University shall not be responsible for any inconvenience, losses or ill-consequences arising there from.

Admission to the University implies acceptance of all provisions given in the University Act, Statutes, Academic Regulations & admission policy and changes made from time to time therein, by the candidate and his/her parents/guardians.

Disputes pertaining to admission, if any, shall fall within the jurisdiction of Himachal Pradesh Courts at Palampur and Shimla only.

INTRODUCTION

CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur-a leading hill agricultural University of India came into existence on November 01, 1978 to cater to the needs of hill farmers. Prior to this, agricultural education in Himachal Pradesh was taken care of by two Colleges of Agriculture- one at Palampur and the other at Solan which were the part of the then Agricultural Complex functioning under Himachal Pradesh University, Shimla. In fact, the College of Agriculture, Palampur was established in 1966 under Punjab Agricultural University, Ludhiana and the College of Agriculture, Solan in 1964 under Panjab University, Chandigarh. With the trifurcation of the state of Punjab in 1970 and establishment of Himachal Pradesh University (HPU), Shimla; teaching, research and extension education in agriculture came under the umbrella of the Agricultural Complex with its headquarter at Palampur under HPU. On November 01, 1978, the then Agricultural Complex was upgraded to a full-fledged State Agricultural University with its headquarter at Palampur and Solan Campus constituted as the second campus of the University. This set-up remained till Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Solan was carved out from the State Agricultural University on December 1, 1985.

Objectives

- i. Making provisions for imparting education in agriculture and other allied branches of learning and scholarship which University may find necessary to include.
- ii. Furthering the advancement of learning and prosecution of research both basic and applied.
- iii. Undertaking extension of such sciences, especially to the rural people of the State.
- iv. Such other purposes as the University may determine from time to time.

Building Partnership

The University maintains intra-institutional linkages with various departments of the constituent Colleges and its Regional Research Stations and Extension Centres. In order to develop quality education and research collaborations, the University has entered into Memorandum of Understanding (MOU) with Regional, National and International Institutions in the priority/thrust areas to expand its strategic partnership. Presently, seven MOUs with different institutions viz., Punjab Agricultural University (PAU), Ludhiana, Institute of Himalayan Bio-resource Technology (CSIR-IHBT), Palampur, Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Rajiv Gandhi Government Postgraduate Ayurvedic College, Paprola (H.P.), INFLIBNET Center, Ahmedabad- an IUC of UGC, Panjab University, Chandigarh, and Mongolian University of Life Sciences, Mongolia are in operation in the University.

Locale

The campus of the University is located at a distance of 3 km from the Palampur bus stand along the Pathankot-Mandi National Highway (NH-154) at an elevation of about 1300 meter above mean sea level. It is also linked with narrow gauge railway and the nearest station is Palampur (Himachal), which is about 5 km from the University Campus. The Kangra Civil Airport at Gaggal is about 50 km from the Campus. The 400 hectare farm of the University dotted with imposing beautiful buildings against the backdrop of panoramic majestic snow-clad Dhauladhar range makes it picturesque.

Constituent Colleges

The University has the following four colleges:

1. College of Agriculture

The College of Agriculture was established in the year 1966 and offers B.Sc. (Hons.) Agriculture, Masters' and Doctoral Programmes.

2. Dr. G.C. Negi College of Veterinary and Animal Sciences

The College of Veterinary and Animal Sciences was established in the year 1986 and offers B.V.Sc. & A.H., M.V.Sc., and Ph.D. Programmes.

3. College of Basic Sciences

The College of Basic Sciences was established in the year 1991 and offers B.Sc., M.Sc. and Ph.D. Programmes.

4. College of Home Science

The College of Home Science was also established in the year 1991 and offers B.Sc. (Hons.) Home Science, B.Sc. (HHA), B.Tech.(Food Technology), M.Sc. and Ph.D. Programmes. From the academic session 2017-18, the degree nomenclature of B.Sc. (Hons.) Home Science, M.Sc. and Ph.D. degrees shall be B.Sc. (Hons.) Community Science, M.Sc. (Community Science) and Ph.D. (Community Science) respectively.

Advisement

The University ensures attention to individual student through its advisory system. The Dean of College concerned assigns each undergraduate student to a teacher of the college who acts as the 'Advisor' to the student in all academic matters and also nominates a teacher of the college to act as 'Tutor' of an undergraduate class who would coordinate with all the Advisors of that class for proper supervision and registration of students of that class. At postgraduate level, an advisory committee consisting of 3-5 teachers with one as Major Advisor is appointed for each student. The major advisor also maintains a close contact with parents/guardians of his/her advisees.

Directorate of Research

The Directorate of Research undertakes location specific, need based and problem oriented research with multi-disciplinary approach in the fields of Agriculture, Veterinary & Animal Sciences, Home Science and Basic Sciences at the main campus, Palampur as well as at different Research Centres/Stations representing different agro-climatic zones of the State.

Directorate of Extension Education

The Directorate of Extension Education has the responsibility of extending the results of research to the farmers' fields as well as getting feedback on such research results for future research prioritization.

International Coordination Cell (ICC)

To facilitate foreign/International students for admissions and their stay at CSKHPAU, Palampur an International Coordination Cell having an Executive Committee, an Advisory Committee and Registrar as its Liaison Officer has been established.

Students' Welfare Organization

This organization is responsible for overall welfare of the students besides maintenance of discipline amongst students. It has within its ambit hostels, personality development & placement, sports and athletic activities, NSS, NCC and co-curricular activities. Every undergraduate male and female student is required to undergo compulsory NCC and NSS courses, respectively, during the first two years of his/her degree programme.

Student Hostel Facilities

There are 10 students' hostels comprising five for girls, four for boys and one for international students. Each hostel is looked after by a Warden who is appointed from amongst the faculty. The hostel messes are being run on cooperative basis and the hostel residents are responsible for their management. The hostels have been provided with computers equipped with internet facility, CCTV cameras, washing machines, etc., besides television and facilities for indoor games.

Sports Facilities

The University has a well maintained playground with 400 meters standard track with facilities to play volleyball, football, hockey, cricket, besides a well-equipped indoor gymnasium having table tennis, basketball and badminton courts.

Human Resource Development and Placement Centre

This centre has been established by the University under Students' Welfare Organization to provide guidance to students for pursuing higher education both in the country and abroad; to impart coaching for competitive examinations both for earning scholarship and employment; to assist the students in finding the employment by proper placement and to explore, in collaboration with the Directorate of Extension Education, possibility for self-employment to the unemployed graduates through different programmes run by different agencies.

University Library

The library of the University at Palampur campus is well-equipped with all the relevant reading material. It caters to the needs of the students, teachers, extension specialists and the staff of the University. The library system also maintains and provides internet services, e-journal access and CD-ROM facilities to its members and other national and international clients. The FAO has designated the University library as 'FAO Repository' and, therefore, is entitled for FAO publications free of cost.

Health Centre

The University has its own health centre. In addition, medical facilities are also available at Vivekanand Medical Research Institute and Specialty Hospital, Palampur, Sub-Divisional Hospital, Palampur, Dr. Rajendra Prasad Government Medical College, Tanda and Zonal Hospital, Dharamshala.

Medium of Instruction

The medium of instruction in all academic programmes is English. It is, therefore, necessary for all students to possess high standards of competence in the language for proper comprehension.

ADMISSION AND ENROLMENT

Application Procedure

The Information Brochure & Prospectus alongwith Application Form for admission to **B.V.Sc. & A.H., B.Sc. (Hons.) Agriculture and Masters' degree programmes** are available **online** at the University Website <http://hillagric.ac.in>. The candidates applying for admission to the programme(s) will have to fill the online application form whereas for the NRI/Foreign Nationals, the application form (*Specimen is given as Annexure VIII*) will have to be downloaded from the University Website and submitted duly filled in all respects, accompanied by requisite fee along with a set of self attested copies of all the relevant documents, to the Registrar, CSKHPKV, Palampur (H.P.), India so as to reach on or before the last date fixed for receipt of application form.

Note: *The candidates appearing in the qualifying examination can also apply provided they produce original marks sheet of the qualifying examination at the time of counselling failing which their candidature will not be considered.*

Last date for receipt of Application Form

- | | | |
|-------------|---|---|
| i) Online | : | 15.05.2017 (All candidates except NRIs/Foreign Nationals) |
| ii) Offline | : | 15.07.2017 (NRIs/Foreign Nationals) |

Application Fee

Application fee for all the above mentioned academic programmes is Rs. 1600/- for General/OBC candidates and Rs. 1100/- for SC/ST/DA category candidates. If the candidate opts for Self-Financing seat, he/she has to deposit an **additional fee** of Rs. 1500/-. **Further, if the candidate does not opt for Self-Financing seat at the time of filling online application form, his/her candidature for self financing seat will not be considered even in admission through walk-in-interview.**

Non-H.P. bonafide candidates can only apply for self financing category by depositing Rs. 3100/- (Rs. 1600 + Rs. 1500/-) as application fee. In case, due to non-availability of HP Bonafide candidates, their candidature may be considered against the vacant seat(s) of HP Bonafide category, if any, at the time of walk-in-interview. In such cases, the candidates shall have to attend the walk-in-interview.

Rejection of Application

Incomplete application or the application not accompanied by requisite fee shall be rejected straightaway.

Academic Programmes

University offers admission to B.V.Sc. & A.H., B.Sc. (Hons.) Agriculture and various Masters' degree programmes through Entrance Test whereas for other programmes [B.Sc. Physical Sciences (Physics, Chemistry & Mathematics)/ B.Sc. Life Sciences (Botany, Zoology & Chemistry), B.Sc. (Hons.) Community Science, B.Sc. (Hospitality & Hotel Administration), B.Tech. (Food Technology) and Doctoral programme], the admission is based on *merit* of the qualifying examination.

Mode of Admission

The mode of admission for various degree programmes to which admission is offered on the basis of Entrance Test shall be as under:

Programme	Selection Criterion
B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture	Entrance Test Score
Master's Programme	$WS = \frac{60A}{T_1} + \frac{40B}{T_2}$ {where WS - weighted score; A - marks obtained in ET; B - marks obtained in qualifying examination; T ₁ - max. marks in ET; T ₂ - maximum marks in qualifying examination}

Note:

- i. Percentage of marks in qualifying examination, entrance test/ weighted score will be considered up to second place of decimal.
- ii. Where two or more candidates obtain equal marks in the entrance test in case of B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture programmes, their merit will be decided on the basis of performance in 10+2/ equivalent examination with advantage to the candidate getting higher percentage of marks in Physics, Chemistry and Biology/Biotechnology/Mathematics/ Agriculture. In case, the percentage of marks as mentioned above is also equal, the candidate who is older in age will be placed higher in merit than the one who is younger.
- iii. Where two or more candidates have obtained equal weighted score in case of Masters' programmes, their merit will be decided on the basis of performance in qualifying examination. In case, the percentage of marks in qualifying examination is also equal, the candidate who is older in age will be placed higher in merit.
- iv. **No candidate shall be admitted unless:**
 - a. He/she attains 17 years of age by 31st December, 2017.
 - b. He/she has acquired the minimum eligibility qualification on the date of counselling.

Time of Admission

Admission to B.V.Sc. & A.H., B.Sc. (Hons.) Agriculture and Masters' programmes shall be made at the commencement of first semester of the academic year only.

Duration of Programmes

The duration of different degree programmes shall be as under:-

Programme	Duration	
	Normal	Maximum
B.V.Sc. & A.H.	5½ professional years (including one year internship)	Nine academic years (excluding one year internship)
B.Sc. (Hons.) Agriculture	8 semesters	Double the duration of the normal period irrespective of registered/unregistered/withdrawn semester(s).
M.Sc./M.Sc.Ag./M.Sc. (Community Science) /M.V.Sc.	4 semesters	

Note: Under no circumstances the maximum duration shall be extended.

Subjects of Study

The subjects of study and the syllabi thereof for different study programmes shall be as prescribed by the Academic Council from time to time.

Minimum Eligibility Qualification

The minimum eligibility qualification for admission to Undergraduate and Masters' programmes shall be as under: -

A. Undergraduate Programmes	
Degree	Minimum Eligibility Qualification
B.V.Sc. & A.H.	<p>Qualification: 10+2/Intermediate or equivalent examination conducted by an Education Board/University/Council (duly recognized by the H.P. Board of School Education, Dharamshala/ Association of Indian Universities/ MHRD, New Delhi) with not less than pass marks in each subject.</p> <p>Subjects: Physics, Chemistry, Biology/Biotechnology and English (as a core course).</p> <p>Minimum Percentage: 50% marks for General/OBC category (47.5% for SC/ST/DA category) in aggregate of English, Physics, Chemistry and Biology/Biotechnology.</p> <p style="text-align: center;">OR</p> <p>Any examination equivalent to 10+2 level with 50% marks in the subjects of Physics, Chemistry, Biology/Biotechnology and English from a University/Education Board/College/School in a foreign country recognized by the University.</p>

B.Sc.(Hons.) Agriculture	<p>Qualification: 10+2/Intermediate/ Higher Secondary or equivalent examination conducted by an Education Board/University/Council (duly recognized by the H.P. Board of School Education, Dharamshala /MHRD, New Delhi) with not less than pass marks in each subject.</p> <p>Subjects: PCB/PCM/PCA/Intermediate (Agriculture) {P-Physics, C-Chemistry, B-Biology, M-Mathematics & A-Agriculture}.</p> <p>Minimum Percentage: 50% marks for General/OBC category (40% for SC/ST/DA category) in aggregate.</p> <p style="text-align: center;">OR</p> <p>Any examination of a University/Education Board/College/School in a foreign country recognized as equivalent for the purpose by the University with good knowledge of English.</p>
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B. Masters' Programmes

The minimum eligibility qualification for admission to Masters' programmes (other than in-service candidates) shall be an OCPA/OGPA of 6.50/10.00 or 3.25/5.00 or 2.60/4.00 or 60% marks (where grade points are not awarded) for Gen./OBC category (5.50/10.00 or 2.75/5.00 or 2.20/4.00 or 50% marks for SC/ST/DA category) at the graduation level (as shown against respective discipline) from a University established by law in India.

OR

A degree of a foreign University (with at least 'B' grade or its equivalent) recognized as equivalent for the purpose by the University with good knowledge of English.

Degree	Discipline	Eligibility Qualification
M.Sc. Ag.	Agricultural Biotechnology	B.Sc. (Hons.) Agriculture/ Horticulture/ Forestry/ B.Sc. Agriculture/ Horticulture/Forestry/ B.Sc. Agri. Biotechnology <i>(4/5/6 years programmes only)</i>
	Agricultural Economics Agronomy Entomology Genetics & Plant Breeding Horticulture (Vegetable Science) Plant Pathology Seed Science & Technology Soil Science and Agriculture Chemistry	B.Sc. (Hons.) Agriculture/ Horticulture/ Forestry/Sericulture/ B.Sc. Agriculture/ Horticulture/Forestry/Sericulture <i>(4/5/6 years programmes only)</i>
M.Sc.	Biochemistry	B.Sc. (Hons.) (Biochemistry/Chemistry)/B.Sc.(Botany, Zoology & Chemistry/ Physics, Mathematics & Chemistry / Biotechnology with Chemistry as one of the subjects)/ B.Sc. Agriculture/Horticulture/ Forestry/Sericulture or B.Sc. (Hons.) Agriculture/Horticulture/ Forestry/Sericulture
	Environmental Sciences	B.Sc. (Hons.) Environmental Sciences/B.Sc. (Botany, Zoology & Chemistry / Physics, Mathematics & Chemistry /B.Sc.(Agriculture/ Horticulture/ Forestry/Sericulture /Home Science)/ B.V.Sc./B.V.Sc. & A.H./B.Sc.(Hons.) Agriculture/ Horticulture/ Forestry/Sericulture /Home Science/ Community Science
M.Sc. (Community Science)	Family Resource Management	B. Sc. Home Science /B. Sc. (Hons.) Home Science/ B. Sc. (Hons.) Community Science <i>(4/5/6 years programmes only)</i>
	Food Science and Nutrition	B. Sc. (Hons.) Home Science/ Food Nutrition & Dietetics/ Community Science / Agriculture/ B. Sc. Home Science <i>(4/5/6 years programmes only)</i>

M.V.Sc.	Animal Genetics & Breeding Animal Nutrition Animal Reproduction & Gynaecology Vet. Anatomy Vet. Medicine Vet. Microbiology Vet. Pathology Vet. Public Health Vet. Surgery	B.V.Sc. & A.H./ B.V.Sc. (Candidate must hold a valid registration from VCI/State Veterinary Council)
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Note:

- i. The candidate would be deemed to have passed the qualifying examination, if he/she has successfully completed all the requirements prescribed for the said examination and his/her result has been formally declared by the Board/University on or before the date of counselling.
- ii. The Advisory Committee of a student may prescribe certain additional courses depending on his/her academic background at undergraduate level.
- iii. A candidate shall have to mention specifically the Masters' programme(s) {M.Sc. Ag./M.Sc./M.Sc. (Community Science)/M.V.Sc.} for which he/she is willing to be considered for admission while filling online application form. However, he/she will have the right to exercise the choice of discipline/subject (in writing) at the time of counselling. Once the choice is exercised, change of discipline/subject will not be allowed.
- iv. In case of in-service candidates, the minimum qualifying marks for admission to postgraduate programme shall be relaxable by 5% in case of general and 10% in case of Scheduled Castes/Scheduled Tribe/Differently Abled category candidates.
- v. An OCPA/OGPA/CGPA in qualifying examination of candidate shall be converted into percentage of marks as per conversion formula prescribed by the University from where examination is passed. In case, the conversion formula is not prescribed, the percentage of marks will be determined as per the conversion formulae given below:

Formula for conversion of OCPA/OGPA to percentage:

Conversion System of 4 point scale $Y = 50 - 10X + 5X^2$

Conversion System of 10 point scale $Y = 10Z$

$Y = \% \text{ marks}$

$X = \text{OGPA in 4 point scale}$

$Z = \text{OGPA in 10 point scale}$

Number of Seats and Distribution

A. Number of Seats

The total number of students to be admitted in an Academic Year against university seats (HP Bonafide & over and above seats) and ICAR/VCI/DBT seats for all degree programmes is fixed by the Academic Council and it shall not be reviewed for that Academic Year. The number of seats for the Academic Year 2017-18 is listed in **Table 1 & 2.**

B. Distribution of seats

1. Undergraduate Programmes [B.V.Sc. & A.H. and B.Sc.(Hons.) Agriculture]

- a. 85% of total seats in each programme shall be bifurcated and filled up by the University as under:

(i) HP Bonafide Seats: These seats are for the candidates who are Bonafide Himachali as defined in H.P. Govt. Revenue Law or who have passed at least 2 out of 3 (8th, 10th & 12th standard) Examinations from schools/colleges situated in the territorial jurisdiction of Himachal Pradesh.

(ii) Over and above Seats: These seats are for In-service nominees, Kashmiri Migrant, Nominees of J&K Government, NRI/Foreign Nationals, Khalet/Rajpur Panchayats and Self Financing candidates.

- b. The remaining 15% of the total seats will be filled in through All India Competitive Examination conducted by ICAR/VCI.

2. Master's Programme

- a. 75% of total seats in each programme shall be bifurcated and filled up by the University as under:

(i) HP Bonafide Seats: These seats are for the candidates who are Bonafide Himachali or who have passed their qualifying examination from the institutions/universities situated in territorial jurisdiction of Himachal Pradesh.

(ii) Over and above Seats: These seats are for In-service nominees, Kashmiri Migrant, Sports/Co-Curricular Activities, NRI/Foreign Nationals, Fellowship Awardees and Self Financing candidates.

- b. The remaining 25% seats of total seats will be filled in through All India Competitive Examination conducted by ICAR.

Further distribution of seats under 1 (a)(i) and 2(a)(i) above:

- i. 15% and 7.5% seats will be reserved for the students belonging to the Scheduled Castes and Scheduled Tribe categories respectively. In case, the requisite number of candidates from a particular reserve category i.e. Scheduled Caste or Scheduled Tribe is not available, it will be filled up from the Scheduled Tribe or Scheduled Caste category, as the case may be, but the total reservation will not exceed 22.5%.
- ii. 2% seats in each programme shall be reserved for the wards of freedom fighters in accordance with the instructions of the HP Govt. on the issue as amended from time to time.
- iii. One seat in each Undergraduate Programme shall be reserved for the sons/daughters of the serving/ex-defence personnel. Merit being equal, preference shall be given to the sons/daughters of serving/ex-defence personnel who is a gallantry award winner. In case, two candidates are sons/daughters of serving/ex-defence personnel who are also gallantry award winners then the candidate older in age will be placed higher in merit.
- iv. 3% seats for admission to UG/Masters' Programmes shall be reserved, **horizontally across the categories** in different programmes for Differently Abled (DA) candidates suffering from low vision, hearing impairment, locomotors disability or cerebral palsy with appropriate medical certificate having at least 40% disability and found suitable by the Counselling Committee. The degree of acceptable disability for admission, however, could be variable from one subject to another. The decision of the University authority will be final in this regard. The candidates applying for admission under this category should submit a self attested copy of the certificate being disabled at the time of counselling.

Further, for B.V.Sc. & A.H., a candidate shall not be allowed admission if he/she suffers disabilities in physical fitness as listed below:

- a. Disability of total body including disability of chest or spine more than 50%.
- b. Disability of lower limb more than 50%.
- c. Disability of upper limb.
- d. Visually disabled candidates and those with hearing disability.
- e. Candidate with progressive diseases like myopathies, etc.
- f. Disability, which otherwise would interfere in the performance of the duties of a veterinarian.

Note: The disability shall be certified by a duly constituted and Government authorized Medical Board comprising of at least three specialists out of which two shall be of the specialty concerned and the candidate has to present him or her-self before the Medical Board and the last valid disability certificate of the candidate from a Medical Board shall not be more than six months old from the date of counseling.

- v. One seat each in B.Sc. (Hons.) Agriculture and B.V.Sc. & A.H. programmes shall be reserved for Other Backward Classes (OBC). The candidates applying for admission under this category shall have to submit a self attested copy of the certificate of OBC (FORM V of Annexure V) at the time of counselling failing which their candidature under the category shall not be considered.
- vi. One seat each in B.Sc. (Hons.) Agriculture and B.V.Sc. & A.H. programmes will be reserved for candidates excelling in sports/co-curricular activities including NCC/NSS/Scouting. The admission under sports/co-curricular activities will be governed as per the criteria mentioned in **Annexure III**.

Further distribution of seats under 1 (a)(ii) and 2(a)(ii) above:

1. Undergraduate Programmes

a) In-service nominees

- i. In B.V.Sc. & A.H. one seat each shall be reserved for the in-service Veterinary Pharmacist **nominee of the H.P. Govt. and CSKHPKV, Palampur**, provided he/she has minimum 50% marks in the aggregate of Physics, Chemistry and Biology/Biotechnology with at least pass marks in each subject in the qualifying examination and has appeared in Entrance Test.

- ii. In B.Sc. (Hons.) Agriculture five seats shall be reserved for in-service **nominees of the H.P. Govt., ICAR and CSKHPKV, Palampur**, as described in **Table 1**, provided the candidate has minimum 50% marks in the aggregate of Physics, Chemistry, Biology/Mathematics/Agriculture with at least pass marks in each subject in the qualifying examination and has appeared in Entrance Test.

b) Candidates from Khalet & Rajpur Panchayats

Two candidates each from **Khalet & Rajpur Panchayats** would be admitted in B.Sc. (Hons.) Agriculture provided they fulfil the minimum qualifications as prescribed for admission to the programme.

Provided that the benefit of reservation can be availed of only by the heirs/sons/daughters of those residents of respective Panchayats who were residing in the concerned Panchayat area prior to July 4, 1966 and who still continue to reside and have proprietary rights in the concerned Panchayat. The candidate must produce certificate to this effect on the prescribed proforma (Form VII of Annexure V) issued by the SDM/Executive Magistrate. Provided further that, if any candidate belonging to any such Panchayat comes in the open merit, the reservation of seat to that extent will stand exhausted.

Note: *The Candidate seeking admission against the seat reserved for the RAJPUR/KHALET Panchayat shall also submit a copy each of 'SHAJRA NASAB' and 'JAMABANDI' from the Patwari concerned to prove that the ancestors of the candidate owned land and held proprietary rights in the concerned Panchayat and he /she still enjoys those rights at present and also residing in the same Panchayat.*

- c) **Kashmiri Migrants:** One seat each in B.Sc. (Hons.) Agriculture and B.V.Sc. & A.H. programmes shall be reserved for Kashmiri Migrants who have appeared in entrance test. In this case, qualifying marks in degree examination shall be relaxable by 10%. In case, two or more such candidates appear in the counselling, the seat shall be filled on the basis of merit as per the mode of admission. The candidates applying for admission under this category shall have to submit a self attested copy of the certificate to this effect at the time of counselling failing which his/her candidature under this category shall not be considered.
- d) **Nominees of J&K Government:** Two seats each in B.Sc. (Hons.) Agriculture and B.V.Sc. & A.H. programmes shall be reserved for students nominated by Jammu & Kashmir Government as per the decision of Government of India.
- e) **Self-Financing Seats:** These seats are for those candidates who are willing to take the admission in a particular programme in the University but could not on the basis of their rank and have opted out to pay the extra fee in addition to the usual fee. However, the admission under these seats is also done on the basis of merit (as per mode of admission).
- f) **NRI Candidates:** Number of seats not exceeding 15% of the HP Bonafide seats under B.Sc. (Hons.) Agriculture and B.V.Sc. & A.H. Programmes shall be for Non-Resident Indians (NRIs) category candidates and shall be filled on the merit of eligibility qualification.
- g) **Foreign Nationals:** Number of seats not exceeding 10% of the HP Bonafide seats under B.Sc. (Hons.) Agriculture and B.V.Sc. & A.H. Programmes shall be for the candidates (other than those nominated/sponsored by Govt. of India/ICAR) from foreign countries and shall be filled on the merit of eligibility qualification.

2. Masters' programmes

- I. **Nominees of H.P. Government:** One seat in each college will be reserved for in-service candidates nominated by H.P. Govt. who have appeared in entrance test.
- II. **Nominees of CSKHPKV:** One seat in each college will be reserved for the in-service candidates nominated by CSKHPKV who have appeared in entrance test.
- III. **Sports/Co-Curricular Activities:** One seat in each College will be reserved for candidates excelling in sports/co-curricular activities including NCC/NSS/Scouting. The admission under sports/co-curricular activities will be governed as per the criteria mentioned in **Annexure III**.
- IV. **Kashmiri Migrants:** One seat in each college will be reserved for Kashmiri Migrants who have appeared in entrance test. In this case, qualifying marks in degree examination shall be relaxable by 10%. In case, two or more such candidates appear in the counselling, the seat shall be filled on the basis of merit as per the mode of admission. The candidates applying for admission under this category shall have to submit a self attested copy of the certificate to this effect at the time of counselling failing which his/her candidature under this category shall not be considered.

- V. **Fellowship Awardees:** One seat in each discipline shall be reserved for candidates who have been awarded fellowship by CSIR/UGC/BARC/DST. In case, two or more such candidates appear in the counselling, preference would be given to candidates possessing higher percentage of marks in qualifying degree examination.
- VI. **Self-Financing Seats:** These seats are for those candidates who are willing to take the admission in a particular programme in the University but could not on the basis of their rank and have opted out to pay the extra fee in addition to the usual fee. However, the admission under these seats is also done on the basis of merit (as per mode of admission).
- VII. **NRI Candidates:** Number of seats not exceeding 15% of the HP Bonafide seats in each college shall be for Non-resident Indians (NRIs) category candidates and shall be filled on *merit* of eligibility qualification subject to a maximum of two seats in any one discipline.
- VIII. **Foreign Nationals:** Number of seats not exceeding 10% of the HP Bonafide seats in each college shall be for the candidates (other than those nominated/sponsored by Govt. of India/ICAR) from foreign countries and shall be filled on the *merit* of eligibility qualification.

Note:

- i. *While calculating reservations, fraction less than 0.5 will be ignored and 0.5 or above will be taken as one seat.*
- ii. *The candidature of in-service candidates will be considered valid only if they are sponsored by the Government of Himachal Pradesh/ CSKHPKV, Palampur by the date of counselling.*
- iii. *The reservation for SC/ST candidates in Masters' Programme has been made in accordance with 100 point roster system in each college by arranging disciplines alphabetically.*
- iv. *In case, the seats remain vacant under B 1(a)(i) & B 2(a)(i), the same will be filled category wise on merit (as per mode of admission) at the time of walk-in-interview. During this process, if seats remain vacant due to non availability of HP Bonafide candidates, the same will be open to all other eligible candidates except SC/ST category seats in B.V.Sc. & A.H. programme where the seats of SC/ST category remained vacant shall be filled up on all India basis from the candidates belonging to the respective category.*
- v. *In case, the seats remain vacant under B 1(b) & B 2(b), the same will be filled up by the University on merit (as per mode of admission) at the time of walk-in-interview and will be open to all eligible candidates.*
- vi. *In case, seat(s) under in-service of H.P. Government/CSKHPKV Palampur category remains vacant in undergraduate Programmes, it will be offered to Self Financing Seats (SFS) category candidates.*
- vii. *In case, seat(s) under Foreign National category remains vacant in undergraduate Programmes, it will be offered to NRIs category candidates.*
- viii. *In case, seat(s) under NRIs category remains vacant in undergraduate Programmes, it will be offered to Self Financing Seats (SFS) category candidates.*

Table 1: Number of seats and reservations for B.V. Sc. & A.H. and B.Sc. (Hons.) Agriculture

Particulars	Programme	
	B.V.Sc. & A.H.	B.Sc. (Hons.) Agriculture
1. University Seats	51	86
(i) HP Bonafide seats	36	34
i. General	23	21
ii. SC	5	5
iii. ST	3	3
iv. Son/daughter of the serving /ex-defence personnel	1	1
v. Sports/Co-curricular Activities category	1	1
vi. Ward of Freedom Fighter	1	1
vii. Differently Abled Person	1	1
viii. OBC	1	1
(ii) Over and above seats	15	52
1. In-service of the H.P. Govt.	1	2
2. In-service nominee of CSKHPKV, Palampur	1	1
3. In-service nominee of ICAR	-	2
4. Khalet Panchayat	-	2
5. Rajpur Panchayat	-	2
6. Kashmiri Migrant	1	1
7. Nominees of J & K Govt.	2	2
8. NRI	2	2
9. Foreign National	2	2
10. Self Financing Seats (SFS)	6	36
2. VCI/ICAR Seats	9	15
Total Seats	60 (36 +15 + 9)	101 (34 +52 + 15)

Table 2: Number of seats and their reservation for Masters' programme in different disciplines of the colleges

Discipline	Master's Programme						NRI	Foreign National
	Number of Seats							
	HP Bonafide			SFS	ICAR/DBT	Total		
Gen	SC	ST						
COLLEGE OF AGRICULTURE								
Agricultural Biotechnology	5 [#]	-	-	2	10 [#]	17	06	04
Agricultural Economics	2	1	1	3	3	10		
Agronomy	5	1	-	4	3	13		
Entomology	3	-	1	2	2	08		
Genetics & Plant Breeding	6	2	-	3	4	15		
Horticulture (Vegetable Science)	4	-	-	2	2	08		
Plant Pathology	3	-	1	2	2	08		
Seed Science & Technology	2	-	-	1	1	04		
Soil Science and Agriculture Chemistry	3	1	-	2	2	08		
COLLEGE OF BASIC SCIENCES								
Biochemistry	3	-	-	1	2	06	1	1
Environmental Sciences	2	1	-	1	2	06		
COLLEGE OF HOME SCIENCE								
Family Resource Management	2	-	-	1	1	04	1	1
Food Science & Nutrition	3	1	-	6	3	13		
DR. G.C. NEGI COLLEGE OF VETERINARY & ANIMAL SCIENCES								
Animal Genetics & Breeding	2	-	-	-	1	03	4	2
Animal Nutrition	2	-	-	-	1	03		
Animal Reproduction & Gynaecology	3	1	-	2	2	08		
Vet. Anatomy	3	1	-	1	2	07		
Vet. Medicine	1	-	1	-	1	03		
Vet. Microbiology	3	1	-	1	2	07		
Vet. Pathology	2	-	-	-	1	03		
Vet. Public Health	3	-	-	1	1	05		
Vet. Surgery	-	1	1	1	1	04		

Admission is based on combined entrance examination conducted by JNU, New Delhi and sponsored by DBT, GOI, New Delhi

Note:

- i. All the Candidates will have to appear in ET-2017 (except Nominees of J&K Government, NRI and Foreign National category candidates) and their admission will be on the basis of their merit (as per mode of admission) in the respective category.*
- ii. First of all, seats in general category will be filled up. The candidates of reserved category who are able to find place in the general merit will be considered to have been admitted against the general category seats. Seats lying vacant in any reserved category due to non-availability of eligible candidates will be added to general category and filled up accordingly except B.V.Sc. & A.H. programme where the seats lying vacant under SC/ST of HP Bonafide category shall be filled up on all India basis from the candidates belonging to SC/ST category.*

Selection of Candidates

- i) The marks of all the candidates appearing in the Entrance Test and the list of candidates to be called for counselling will be declared by the University and displayed on the Notice Board of Administrative Block of the University and also placed on the University Website <http://hillagric.ac.in> about 20 days after the conduct of entrance examination. The counselling will be held as per the schedule given in Important Information. No separate letter will be issued for counselling.**
- ii) The candidates who qualify for the counseling for B.V. Sc. & A.H. and/or B.Sc. (Hons.) Agriculture or Master's Programme shall have to submit 'Counselling Proforma' (Annexure XI) duly completed along with one set of self-attested copies of all the relevant documents. The certificate(s) of Bonafide, SC, ST, DA, Ward of serving/ ex-defence personnel, Resident of Rajpur/Khalet Panchayat {for B.Sc. (Hons.) Agriculture} etc. should be as per specimen given in Annexure V.**

The candidates shall have to produce all original certificates/testimonials and other documents relating to admission to the Counseling Committee on the date of counselling failing which their candidature shall not be entertained.

Note:

- i. It is mandatory for the candidate to report for counselling on the specified time, date & venue (given in 'Important Information') and mark his/her attendance in the attendance sheet/register kept for the purpose, otherwise his/her candidature will not be entertained and his/her right to admission will be forfeited.*
- ii. The counselling committee shall determine the eligibility of candidates and thereafter prepare select and waiting lists. The candidate(s) from the waiting list will be allotted seat(s) against the seats remaining vacant from the select list as per admission schedule given in 'Important Information'. The Registrar, CSKHPKV, Palampur will declare the select/waiting list of each programme (except in case of Walk-in-Interview) and display the same on the notice boards of Administrative Block, respective college and University Website <http://hillagric.ac.in>. In case of Walk-in-Interview, the Chairman of the Committee will declare the list of the selected candidates on the day of Walk-in-Interview and display the same on the notice board of the respective colleges / office of the Dean, Postgraduate Studies with a copy to Registrar, CSKHPKV, Palampur. If a candidate fails to register himself/ herself as per Mode of Registration(as described below) and deposit the fee by the due date of registration, his/her candidature will be cancelled and the seat shall be allotted to the next candidate on merit, in the respective category. The candidate shall be required to deposit the fee as per procedure described in 'Important Information'. However, it will be the sole responsibility of the candidate to verify his/her selection to the programme applied for.*

Right of Petition

No representation/petition against the selection will be entertained after the lapse of one month from the issue of final selection list.

Registration

The registration of candidates selected for admission, shall be completed on scheduled date(s) as described in 'Important Information'. The registration in respect of B.V.Sc. & A.H. programme will be done for a professional year at the beginning of each academic year.

Mode of Registration

- i. After depositing the prescribed fee on or before the day of registration, the candidate shall meet his/her Advisor/ Tutor to get advice regarding registration of various courses and shall fill up a set of four differently coloured registration cards in person. After filling up the registration cards, the student shall contact concerned Course Instructors for enrolment in various courses entered in the registration cards.**

- ii. On completion of registration cards as above, the student shall deposit the cards along with the computer generated receipt/bank receipt/demand draft for fee and Medical Fitness Certificate with the Dean of the College concerned on the day of registration up to 5.00 PM.

Refusal of Admission

1. At the time of counselling, the Committee shall also consider the past record of the candidate as a student in the previous institution. If, it is known that candidate being considered for admission has been involved in any act of misconduct/indiscipline in the hostels, in the college or elsewhere, the Counselling Committee may refuse to recommend such a candidate for admission. Those who have been rusticated or debarred by the previous institution shall not be admitted to this University during the period of their disqualification.
2. The Vice Chancellor, for reasons to be recorded in writing, reserves the right of refusing admission to any candidate, whose admission in the opinion of the Vice Chancellor, is not in the interest of the University, even though he/she may fulfill the academic requirements for admission. Further, the Vice Chancellor reserves the right of cancelling admission of any student without prior notice against whom an adverse report about his/her conduct has been received and his/her continuance is considered to be against the interests of the University. The decision of the Vice Chancellor shall be final and binding on the candidate.
3. It is the responsibility of the candidate to furnish complete and correct information in the Application Form. In case, any relevant information is concealed or any certificate/degree/testimonial is found fake/false at any point of time, the admission of the candidate shall be cancelled forthwith at the cost and risk of the candidate.

Medical Fitness

The medical fitness certificate from any Govt. Hospital in the format given at **Annexure VI** as per medical and physical fitness standards prescribed in **Annexure VII** must be produced at the time of registration.

IMPORTANT NOTE: The candidates who are placed on select/waiting list are advised to procure the medical fitness certificate prior to registration to avoid any complication on the day of registration.

Migration Certificate

The students who have passed their qualifying examination from an educational institution other than CSKHPKV are required to submit their **MIGRATION CERTIFICATE IN ORIGINAL before the start of end-term examination of first semester**; otherwise they will not be allowed to sit in the examination.

Rules & Regulations for Admission of NRI Candidates

The rules and regulations for admission of NRI candidates in the University will be as below:

1. The NRI candidates shall have to apply for admission for the programme of their choice on the prescribed application form entitled "**Application Form for Admission of NRI/Children of NRI/Ward of NRI/Foreign National Candidate**" to be downloaded from the University Website <http://hillaagric.ac.in>, specimen annexed as Annexure VIII in the Information Brochure & Prospectus.

Note:

- a) NRI candidates are such persons who do not reside in India and who are Non-Resident Indians (residing abroad).
 - b) Ward of NRI is one who has no parents and has been taken as ward by other NRI relative. Such ward is considered for admission provided the guardian of ward is declared as guardian by the court as per provision in "The Guardian and Wards Act. 1890".
2. The admission under this category will be given only to NRIs and/or their children/wards in **B.V. Sc. & A.H.; B.Sc. (Hons.) Agriculture and Master's Programmes**. The academic eligibility requirements for these candidates are the same as for general category candidates. The candidate must send the application form complete in all respects along with a set of self attested copies of the necessary documents and an application fee (*non-refundable*) of US \$ 500 (US\$ 520 in case of out station draft) in the form of a demand draft (*drawn in favour of Comptroller, CSKHPKV, Palampur (H.P.), India payable at any scheduled commercial bank at Palampur*) to the Registrar, CSKHPKV, Palampur (H.P.), India on or before the last date of receipt of application i.e. **15.07.2017**. The application fee may also be deposited online in the Comptroller's Account No. **34854349548** and the **transaction number** thereof must be mentioned on the application form.

3. The NRI candidates seeking admission to **B.V. Sc. & A.H.; B.Sc. (Hons.) Agriculture and Masters' Programmes** of the University will be considered for admission without appearing in the entrance test of the University provided they fulfill the minimum eligibility qualification for the programme as given in the Information Brochure & Prospectus subject to verification of its equivalence. The detail of subjects studied, grades and percentage equivalent marks obtained is to be furnished in 13(a) & (b) of the Application Form. For admission to an Undergraduate Programme, the syllabi of the courses studied at 10+1 and 10+2 level with a clear mention of web address of the concerned Educational Board/Institution must also be attached with the application. Mere submission of application does not guarantee admission to the programme applied for. In case, the number of applicants for **B.V. Sc. & A.H. and B.Sc. (Hons.) Agriculture** programmes is more than the number of seats available in the respective programme, the admission shall be made on the basis of *merit* in the qualifying examination. Similarly, in case of Masters' Programmes if there are more than two candidates for a discipline, the admission shall be made to the said discipline on the basis of their *merit* in the qualifying examination.
4. The candidates seeking admission on the basis of NRI status are required to attach a photo copy of citizenship certificate and passport or any other valid document, duly attested by the Magistrate, with the application form.
5. The University shall notify the select and waiting lists of NRI candidates by **20.07.2017 for UG as well as PG programmes** which will also be placed on the University Website <http://hillagric.ac.in>. The candidates from the select list are required to deposit the requisite fee on or before the last date of registration i.e. **29.07.2017** and get registered themselves in person during the days of registration (26.07.2017 to 29.07.2017). In case of failure to do so, the seat(s) shall be offered to the candidate(s) in waiting list and the last date for deposit of fee and registration in person for such candidates is **06.08.2017**. The candidates are advised to get in touch with the Dean concerned for any information about stay, commencement of classes, etc. and it will be the sole responsibility of the candidate to verify his/her selection to the programme applied for.
6. The NRI candidates shall pay admission fee, tuition fee and hostel accommodation (non-refundable) charges as per table at Sr. No. E of Chapter V entitled "FEE STRUCTURE" in the form of demand draft in US \$ issued against the bank account of NRI in the country in which he/she is residing or in the shape of demand draft in equivalent Indian currency issued against his/her NRI account, maintained in India. **In the latter case, the candidate is required to submit a certificate from the bank that the draft has been issued against his/her parents'/guardian's NRI account.** The demand draft should be drawn in favour of the Comptroller, CSKHPKV, Palampur (H.P.), India payable at any scheduled bank at Palampur, India.
7. The NRI candidates shall be required to have good proficiency in English language.
8. The NRI candidates may visit <http://hillagric.ac.in> / icc@hillagric.ac.in and also inquire at icchpkv@gmail.com for any information about admission, selection, etc.

Rules and regulations for Admission of Foreign National Candidates (Excluding those nominated/sponsored by GOI/ICAR)

The rules and regulations for admission of Foreign National candidates in the University will be as below:

1. The Foreign National candidates shall have to apply for admission for the programme of their choice on the prescribed application form entitled "**Application Form for Admission of NRI/Children of NRI/Ward of NRI/Foreign National Candidate**" to be downloaded from the University Website <http://hillagric.ac.in>, specimen annexed as Annexure VIII in the Information Brochure & Prospectus.
2. The candidates must send the application form complete in all respects along with a set of self attested copies of the necessary documents and an application fee (*non-refundable*) of US \$ 500 (US\$ 520 in case of out station draft) in the form of a demand draft {*drawn in favour of Comptroller, CSKHPKV, Palampur (H.P.), India payable at any scheduled commercial bank at Palampur*} to the Registrar, CSKHPKV, Palampur (H.P.), India on or before the last date of receipt of application i.e. **15.07.2017**. The application fee may also be deposited online in the Comptroller's Account No. **34854349548** and the **transaction number** thereof must be mentioned on the application form.
3. The Foreign National candidates seeking admission to **B.V. Sc. & A.H.; B.Sc. (Hons.) Agriculture and Masters' Programmes** of the University will be considered for admission without appearing in the entrance test of the University provided they fulfill the minimum eligibility qualification for the programme as given in the Information Brochure & Prospectus subject to verification of its equivalence. The academic eligibility requirements for the said candidates are the same as for general category candidates. The details of subjects

studied, grades and percentage equivalent marks obtained are to be furnished in 13(a) & (b) of the Application Form. For admission to an Undergraduate Programme, the syllabi of the courses studied at 10+1 and 10+2 level with a clear mention of web address of the concerned Educational Board/Institution must also be attached with the application. Mere submission of application does not guarantee admission to the programme applied for. In case, the number of applicants for **B.V. Sc. & A.H. and B.Sc. (Hons.) Agriculture** programmes is more than the number of seats available in the respective programme, the admission shall be made on the basis of *merit* in the qualifying examination. Similarly, in case of Master's programmes if there are two or more candidates for a discipline, the admission shall be made to the said discipline on the basis of their *merit* in the qualifying examination.

4. All the foreign national candidates must have a valid student visa at the time of registration. They must be declared medically fit after examination by the doctor authorized by the Indian Embassy in the country from where the student wishes to seek admission. They should have full medical insurance before their admission to any programme in the University.
5. The course-cum-registration fee and hostel accommodation (non-refundable) charges for foreign students shall be as per table at Sr. No. E of Chapter V.
6. The University shall notify the select and waiting lists of Foreign National candidates by **20.07.2017 for UG as well as PG programmes** which will also be placed on the University Website <http://hillagric.ac.in>. The candidates from the select list are required to deposit the requisite fee on or before the last date of registration i.e. **29.07.2017** and get registered themselves in person during the days of registration (**26.07.2017 to 29.07.2017**). In case of failure to do so, the seat(s) shall be offered to the candidate(s) in waiting list and the date for depositing fee and registration in person for such candidates is **06.08.2017**. The candidates are advised to get in touch with the Dean concerned for any information about stay, commencement of classes, etc. and it will be the sole responsibility of the candidate to verify his/her selection to the programme applied for.
7. Foreign National Candidates shall be required to have good proficiency in English language.
8. The foreign national candidates may visit <http://hillagric.ac.in> / icc@hillagric.ac.in and also inquire at icchpkv@gmail.com for any information about admission, selection, etc.

Note:

- i. The admission of foreign national candidates nominated/sponsored by Govt. of India/ICAR shall be regulated by the Indian Council of Agricultural Research (ICAR), New Delhi.
- ii. All foreign national candidates other than those sponsored/nominated by Govt. of India/ICAR shall have to apply for admission at CSKHPKV through Indian Embassy/High Commission in their respective countries of origin.

Other documents required with the application form to be submitted by NRI/Foreign National candidates:

- i. Documents as per Check List given in application form (Annexure IX)
- ii. Affidavit by NRI candidate's parent/guardian(Annexure X)

INSTRUCTIONS/REGULATIONS REGARDING RAGGING

Ragging, in any form, is strictly banned and is a cognizable offence as per the directions of Hon'ble Supreme Court. If any incident of ragging comes to the notice of the authority, the authority would take stern action including expulsion from the Institution as per Academic Regulations. **At the time of admission, every student shall be required to fill online Anti Ragging Undertaking (Affidavit) at www.amanmovement.org as per Annexure IV.**

Academic Regulation governing 'Ragging'

[At par with the UGC Guidelines and Himachal Pradesh Educational Institutions (Prohibition of Ragging) Act, 2009]

Preamble of Ragging

18.2 Ragging includes any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student, or indulging in rowdy or indiscipline activities by any student or students which causes, or is likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof, in any fresher or any other student or asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student, with or without an intent to derive a sadistic pleasure or showing of power, authority or superiority by a student over any fresher or any other student, in the Institution. Therefore, to provide conducive and healthy environment for proper physical and psychological development of all students, the CSK Himachal Pradesh Krishi Vishvavidyalaya, in accordance with UGC Guidelines and the Himachal Pradesh Educational Institutions (Prohibition of Ragging) Act, 2009, brings forth these Academic Regulations to curb the menace of ragging (Applicable from July 4, 2009).

Definition of Ragging

18.3.1 Any act or conduct of student/students whether by words spoken or written which has the effect of teasing, treating or handling with rudeness a fresher/freshers or rowdy or indiscipline activities which causes annoyance, hardship or psychological harm or to raise fear or apprehension thereof or asking to do any act which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of fresher/freshers or showing of power, authority or superiority on fresher/freshers.

Any act of violence, physical/mental, directed towards any other student of the College, within a Campus or outside a Campus is Ragging.

18.3.2 The act or conduct of ragging includes the following:

- i. any conduct by any student or students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness a fresher or any other student;
- ii. indulging in rowdy or indiscipline activities by any student or students which causes or is likely to cause annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student;
- iii. asking any student to do any act which such student will not in the ordinary course do and which has the effect of causing or generating a sense of shame, or torment or embarrassment so as to adversely affect the physique or psyche of such fresher or any other student;
- iv. any act by a senior student that prevents, disrupts or disturbs the regular academic activity of a fresher or any other student;
- v. exploiting the services of a fresher or any other student for completing the academic tasks assigned to an individual or a group of students;
- vi. any act of financial extortion or forceful expenditure burden put on a fresher or any other student by student(s);
- vii. any act of physical abuse including all variants of it: sexual abuse, homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health or person;
- viii. any act or abuse by spoken words, emails, SMS, post, public insults which would also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student;

- ix. any act that affects the mental health and self-confidence of a fresher or any other student with or without an intent to derive a sadistic pleasure or showing of power, authority or superiority by a student over any fresher or any other student;
- x. to force to look at pornographic pictures or to force take/ arrange drinks.

Administrative Action in the event of Ragging:

18.5 The institution shall punish a student found guilty of ragging after following the procedure as prescribed below:

- a) The Anti-Ragging Committee of the institution shall take an appropriate decision with regard to punishment or otherwise, depending on the facts of each incident of ragging, and nature and gravity of the incident of ragging established in the recommendations of the Anti-Ragging Squad.
- b) The Anti-Ragging Committee may, depending on the nature and gravity of the guilt established by the Anti-Ragging Squad, award, to those found guilty, one or more of the following punishments:
 - i. cancellation of admission,
 - ii. suspension from attending classes,
 - iii. withholding/withdrawing scholarship/fellowship and other benefits,
 - iv. debarring from appearing in any test/examination or other evaluation process,
 - v. withholding results,
 - vi. debarring from representing the institution in any regional, national or international meet, tournament, and youth festival, etc.,
 - vii. suspension/expulsion from the hostel,
 - viii. expulsion from the institution and consequent debarring from admission to any other institution,
 - ix. fine of Rs. 25,000/-,
 - x. collective punishment: when the persons committing or abetting the crime of ragging are not identified, the institution shall resort to collective punishment as a deterrent to ensure community pressure on the potential raggers.

Action to be taken by the Vice-Chancellor:

- 18.6 On receipt of any information concerning any reported incident of ragging, the Vice-Chancellor shall immediately determine, if a case under the penal laws is made out, and if so, either on his own or through a member of the Anti-Ragging Committee authorized by him in this behalf, he would proceed to file a First Information Report (FIR) within twenty four hours of receipt of such information or recommendation, with the police and local authorities, under the appropriate penal provisions relating to one or more of the following:
- i. abetment to ragging;
 - ii. criminal conspiracy to rag;
 - iii. unlawful assembly and rioting while ragging;
 - iv. public nuisance created during ragging;
 - v. violation of decency and morals through ragging;
 - vi. injury to body, causing hurt or grievous hurt;
 - vii. wrongful restraint;
 - viii. wrongful confinement;
 - ix. use of criminal force;
 - x. assault as well as sexual offences or unnatural offences;
 - xi. extortion;
 - xii. criminal trespass;
 - xiii. offences against property;
 - xiv. criminal intimidation;
 - xv. attempts to commit any or all of the above mentioned offences against the victims;
 - xvi. physical or psychological humiliation;
 - xvii. all other offences contained in the definition of "Ragging".

Provided further that the institution shall also continue with its own enquiry initiated under this regulation and other measures without waiting for the action on the part of the police/local authorities and such remedial action shall be initiated and completed immediately and in no case later than a period of seven days of the reported occurrence of the incident of ragging.

“In case, FIR is lodged, on conviction, the student/students can be punished with imprisonment for a term which may extend to three years or with fine which may extend to fifty thousand rupees or with both”.

Contacts in case of ‘Ragging’

Designation	Email Address	Telephone*	
Vice-Chancellor	vc@hillagric.ac.in	+91-1894230521 (O)	+91-1894230522 (R)
Registrar	registrar@hillagric.ac.in	+91-1894230383 (O)	+91-1894230324 (R)
Students’ Welfare Officer	swo@hillagric.ac.in	+91-1894230356 (O)	+91-1894231131 (R)
Dean – PG Studies	dpg@hillagric.ac.in deanpgs2012@gmail.com	+91-1894230408 (O)	+91-9418467275 (M)
Dean – COA	dcoa@hillagric.ac.in	+91-1894230371 (O)	+91-9418084359(M)
Dean – COVAS	dcovas@hillagric.ac.in	+91-1894230327 (O)	+91-9418193740(M)
Dean – COHS	dcohs@hillagric.ac.in	+91-1894230397 (O)	+91-9418331094(M)
Dean – COBS	dcobs@hillagric.ac.in	+91-1894230311 (O)	+91-1894231131 (R)

GUIDELINES REGARDING ENTRANCE TEST

The Entrance Test (ET-2017) for admission to B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture programmes will be held at Centres- Chamba, Hamirpur, Mandi, Nurpur, Palampur, Rampur, Solan, and Una. For admission to Masters' programmes, ET-2017 will be held at Palampur only. The applicants for B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture programmes are required to choose three centers in order of preference. The centre will be allotted preferably as per preferences given by the applicant; however, the University reserves the right to change the centre for Entrance Test.

Mode and schedule of Entrance Test

I. Entrance Test (ET-2017) for B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture programmes

Date of Entrance Test : **04.06.2017**
Duration of Examination : 09.00 A.M. to 12.30 P.M.

The test shall have one paper of 3 hours duration comprising of Physics (60 marks), Chemistry (60 marks) and Biology/Biotechnology/Mathematics/Agriculture (60 marks). The medium of test will be English. A 30 minute time period (09.00 A.M. to 09.30 A.M.) shall be kept before the start of Examination for verification of candidature, etc.

The test will be of objective type and applicants will be provided with a question paper booklet and an OMR answer sheet. Question paper booklet will have 180 'Multiple Choice Objective Type Questions', containing 60 questions in Physics serially numbered from 1-60, 60 questions in Chemistry numbering from 61- 120 and 60 questions in Biology/ Biotechnology/Mathematics/ Agriculture, numbering from 121-180. Each question will be followed by four responses marked as A, B, C and D and out of these four responses only one will be correct. An applicant has to attempt/opt/choose only one subject out of Biology, Biotechnology, Mathematics or Agriculture, which he/she has studied in qualifying examination i.e. 10+2/equivalent in addition to Physics & Chemistry as per the test stream indicated in the application form.

II. Entrance Test (ET-2017) for admission to Master's programme

Date of Entrance Test : **18.06.2017**
Duration of examination : 09.00 A.M. to 12.30 P.M.

- i. The test shall have one paper of 3 hours duration comprising 180 questions in different subject streams- Agriculture, Veterinary & Animal Sciences, Home Science and Basic Science (Medical Group) and Basic Science (Non-Medical Group).
- ii. The applicant has to choose one of the test streams for Entrance Test. However, his/her admission to a particular Master's Programme will be as per the qualification required for that Master's Programme and acquired by the applicant.
- iii. The medium of test will be English. A 30 minute time period (09.00 A.M. to 09.30 A.M.) shall be kept before the start of Examination for verification of candidature, etc.
- iv. The test will be of objective type and applicants will be provided with a question paper booklet and an OMR answer sheet. Question paper booklet will have 180 'Multiple Choice Objective Type Questions'. Each question will be followed by four responses marked as A, B, C and D and out of these four responses, only one will be correct. The applicant has to attempt/opt/choose only one subject stream i.e. Agriculture, Veterinary & Animal Sciences, Home Science, Basic Science (Medical group) and Basic Science (Non-Medical group) as per the entrance test stream indicated in the application form.

Admit Card

The Admit Card will be generated online after logging-in on the University Website <http://hillaagric.ac.in> with the user name and password created at the time of filling-up of application form. Admit card will be available for taking print out after last date of filling online application i.e. **15.05.2017**. The applicant without admit card shall not be allowed to enter the examination hall. In case, an applicant misplaces or loses admit card, he/she can take another print by logging-in at the University Website.

OMR Answer Sheet

- i. The specimen of the answer sheet is given in the Information Brochure & Prospectus. Applicants are advised to go through it and be conversant with the requirements of furnishing particulars and marking the answers so that during the examination they could do so without any difficulty or mistake or loss of time.
- ii. The OMR answer sheet is of special type which will be scanned on optical scanner. The applicant must ensure that the answer sheet is not folded and no stray marks are made on it.
- iii. The applicants shall be required to fill up the following particular(s) in the appropriate boxes on the OMR Answer Sheet:
 - (i) Roll No., (ii) Question Paper Booklet No., (iii) Name and (iv) Signature of the applicant.
- iv. Only the **black ballpoint pen** is to be used to fill up the particulars and darken the circles.

Marking of responses in the OMR Answer Sheet

- i. There will be four alternatives for each question numbering from 001 to 180. The applicant will indicate his/her response to the question by darkening the appropriate circle/oval completely with black ballpoint pen only. The applicants shall bring their own ballpoint pens of good quality. These will neither be provided nor be allowed to be borrowed in the examination hall.

For example, question No. 8 in the question paper booklet reads as follows:

The State Agricultural University of Himachal Pradesh is located at:

A Delhi B Palampur C Shimla D Solan

The correct response to this question is B Palampur. The applicant will locate the question No. 8 on the answer sheet and darken the circle/oval as shown below:

A	B	C	D
O	●	O	O

- ii. If the applicant does not want to attempt any question, he/she should leave it blank.
- iii. If more than one circle is darkened or if the response is marked in any other manner, the answer shall be treated as wrong and shall be rejected. A slight or faintly darkened circle may also lead to rejection of answer.
- iv. For each correct response, the applicant will get one mark. **There will be no negative marking.**
- v. All rough work should be done on the space provided in the Question Booklet only.

Instructions to be followed in the Examination Hall (Time of examination 9.30 AM to 12.30 PM)

1. The examination hall will be opened at 8.30 AM. The applicants are expected to take their seats by 9.00 AM so that they do not miss general/important instructions to be announced in the examination hall.
2. A seat with a roll number will be allotted to each applicant who should occupy his/her allotted seat before the commencement of the process of examination.
3. The identity of the candidates shall be verified by the Invigilator from 9.00 to 9.30 AM.
4. Ten minutes before the commencement of the entrance test i.e. by 9.20 AM, each candidate will be given sealed question paper booklet along with OMR answer sheet.
5. Immediately on receipt of the question paper and OMR answer sheet, the candidate will fill in the required particulars on the cover page of the question booklet with black ballpoint pen only and go through the instructions. He/she shall open the booklet only when asked to do so by the Invigilator. The test will start on announcement made to this effect by the Invigilator at 9.30 AM. A candidate must check and ensure before attempting answers that the question booklet is containing number of pages as written on the top of the first page. The candidate shall not remove any page(s) from the question

booklet, and if any page(s) is/are found missing from his/her booklet, he/she will be proceeded against and shall be liable for criminal action.

6. No entry in the examination hall will be allowed after 10.00 AM.
7. During the examination time, the Invigilator will check the admit card of the candidate to confirm about his/her identity and put in his/her signature in the space provided on the OMR answer sheet.
8. After completing the test and before handing over the question booklet and OMR answer sheet to the Invigilator, the candidate should check again that Roll No. and other particulars required in the question booklet and OMR answer sheet have been written correctly.
9. A signal will be given at the beginning of the examination (09.30 AM), at half time (11.00 AM) and at closing time (12.30 PM).
10. The candidate will not be allowed to leave the hall during examination and without handing over the question booklet and the OMR answer sheet to the Invigilator on completion of the examination.
11. The candidates shall maintain complete silence and attend to their papers only. Any conversation or gestures or disturbances or use of unfair means or not showing their Admit Card on demand by the Invigilator in the examination hall shall be deemed to be acts of indiscipline and the candidate shall forfeit the right to sit in the examination.
12. Carrying of any examination related material (printed or written), bits of paper except the admit card is not allowed in the examination hall.
13. Hand bags, Calculators, Clark tables, MOBILE PHONES, blue tooth, electronic watches with facilities of calculators and any other electronic gadget will not be allowed in the examination hall.
14. Smoking, tea/coffee, cold drinks, etc. will not be allowed in the examination hall.
15. An applicant under the influence of any intoxicant will not be allowed to enter the examination hall.
16. The decision of the Centre Superintendent with regard to observance of above instructions shall be final and binding on the candidates.

Rule for Re-checking/Re-evaluation of Answer Sheet

There will be no **re-checking/re-evaluation** of OMR answer sheet.

Syllabus

The syllabi for the entrance test(s) has been given in **Annexure I & II**.

FEE STRUCTURE

The fee structure is approved by the Competent Authority of the University and it shall generally remain unchanged during the entire duration of the degree programme. The candidates selected for admission will have to deposit the **requisite fee except hostel charges** directly in the Comptroller's Account No. 32088116733 (IFSC: SBIN0003632) at SBI, HPAU, Palampur through internet banking or any other bank transaction after declaration of select list and submit the computer generated receipt or bank receipt as a proof of deposit of fee in the Office of the concerned Dean on the day of registration up to 5.00 PM. The candidate can also deposit the fee by way of demand draft drawn in favour of Comptroller, CSKHPKV, Palampur payable at SBI, HPAU, Palampur (code 0003632), or payable at Palampur (in case of any other bank) and submit the said draft in the office of the concerned Dean on the day of registration. On allotment of hostel accommodation to a student, he/she will have to deposit the hostel charges *directly in the Students' Welfare Officer Account No. 10640344201 (IFSC: SBIN0003632) at SBI, HPAU, Palampur through internet banking or any other bank transaction and submit the computer generated receipt or bank receipt as a proof of deposit of fee in the Office of the Students' Welfare Officer.* The Fee structure for B.V. Sc. & A.H., B.Sc.(Hons.) Agriculture and Master's programmes for the Academic Year 2017-18 is given below:

A. B.V.Sc. & A.H. degree programme

<u>Common Fee</u>	
Particulars	Amount (In Rupees)
Fees to be paid once at the time of admission	
Refundable	
Library Security	1500
NCC/NSS Security	500
Non-Refundable	
Admission Fee	2000
Identity Card	100
Fees to be paid annually (2 semesters)	
Tuition Fee (exempted for girl students of BPL families)	17000
Registration Fee	1400
Examination Fee	11000
Sports & Co –curricular Fee	1200
Amalgamated Fee	3000
NCC/NSS Fee	400
Counselling & Placement Fee	400
Internet Fee	200
Students Association Fee	200
College Common Room Fee	400
Ferry	600
Infrastructure Development Fee	1500
Student Welfare Fee	1000
Medical Fee	500
ASY Premium	86
Youth Red Cross Membership Fee	40

Study Tour	2000
Magazine Fee	200
Library Cards Fee	50
Library Service Fee	500
Miscellaneous Fee	
Late admission Fee (Per day)	1000
Re-registration Fee	1000
Continuance Fee	800
Mass Absence (Per course/per day)	50
Compartment Exam./Odd Semester Fee(Per course)	2000
Re-admission Fee	2000
Total Fee to be deposited at the time of Admission	45776*
Total Fee to be deposited at the time of Admission by girls from BPL families	28776*

<u>Hostel Charges**</u>	
Fees to be paid once at the time of admission	Amount (In Rupees)
Mess Security (Refundable)	2500
Fees to be paid annually (2 semesters)	
Hostel Maintenance Fee	1000
Utensils, Crockery & Breakage Fee	400
Electricity Charges	5000
Hostel Common Room Fee	400
Water Charges	200
Mess Service Charges	6000
Room Rent	
Cubical	4800
Two bedded Rooms	3600 per bed
Dormitory	2400 per bed
Total Hostel Fee to be deposited	Depends on the type of accommodation allotted

B. B.Sc. (Hons.) Agriculture degree programme

<u>Common Fee</u>	
Particulars	Amount (In Rupees)
Fees to be paid once at the time of admission	
Refundable	
Library Security	1500
NCC/NSS Security	500
Non-Refundable	
Admission Fee	2000
Identity Card	100

Fees to be paid annually	
Infrastructure Development Fee	1500
Student Welfare Fee	1000
Medical Fee	500
ASY Premium	86
Youth Red Cross Membership Fee	40
Study Tour	2000
Magazine Fee	200
Library Cards Fee	50
Library Service Fee	500
Fees to be paid per semester	
Tuition Fee (exempted for girl students of BPL families)	8500
Registration Fee	700
Examination Fee	4000
Sports & Co –curricular Fee	600
Amalgamated Fee	1500
NCC/NSS Fee	200
Counselling & Placement Fee	200
Internet Fee	100
Students Association Fee	100
College Common Room Fee	200
Ferry	300
Miscellaneous Fee	
Late admission Fee (Per day)	1000
Re-registration Fee	1000
Continuance Fee (Semester-wise)	400
Mass Absence (Per course/per day)	50
Compartment Exam./Odd Semester Fee (Per course)	2000
Re-admission Fee	2000
Total Fee to be deposited at the time of Admission	26376*
Total Fee to be deposited at the time of Admission by girls from BPL families	17876*

<u>Hostel Charges**</u>	
Fees to be paid once at the time of admission	Amount (In Rupees)
Mess Security (Re-fundable)	2500
Fees to be paid annually	
Water Charges	200
Fees to be paid per semester	
Hostel Maintenance Fee	500
Utensils, Crockery & Breakage Fee	200
Electricity Charges	2500

Hostel Common Room Fee	200
Mess Service Charges	3000
Room Rent	
Cubical	2400
Two bedded Rooms	1800 per bed
Dormitory	1200 per bed
Total Hostel Fee to be deposited	Depends on the type of accommodation allotted

C. Master's degree programme

<u>Common Fee</u>	
Particulars	Amount (In Rupees)
Fees to be paid once at the time of admission	
Refundable	
Library Security	2000
Non-Refundable	
Admission Fee	2500
Identity Card	100
Thesis Evaluation	1500
Viva-voce	3000
Fees to be paid annually	
Infrastructure Development Fee	1500
Student Welfare Fee	1000
Medical Fee	500
Magazine Fee	200
Library Cards Fee	100
Library Service Fee	800
Youth Red Cross Membership Fee	40
Fees to be paid per semester	
Tuition Fee (exempted for girl students of BPL families)	12000
Registration Fee	700
Examination Fee	1200
Sports & Co –curricular Fee	500
Amalgamated Fee	2000
Counselling & Placement Fee	200
Internet Charges	100
Students Association Fee	100
College Common Room Fee	200
Ferry	300
Miscellaneous Fee	
Late admission fee (Per day)	1000
Re-registration fee	1000

Continuance Fee (Semester-wise)	600
Mass Absence (Per course/per day)	50
Odd Semester Fee (per course)	2000
Re-admission fee	2000
Total Fee to be deposited at the time of Admission	30540*
Total Fee to be deposited at the time of Admission by girls from BPL families	18540*

Hostel Charges**	
Fees to be paid once at the time of admission	Amount (In Rupees)
Mess Security (Re-fundable)	2500
Fees to be paid annually	
Water Charges	200
Fees to be paid per semester	
Hostel Maintenance Fee	500
Utensils, Crockery & Breakage Fee	200
Hostel Common Room Fee	200
Electricity Charges	3500
Mess Service Charges	3000
Room Rent	
Cubical	2400
Two bedded Rooms	1800 per bed
Dormitory	1200 per bed
Total Hostel Fee to be deposited	Depends on the type of accommodation allotted

**Does not include miscellaneous fee; **will be payable at the time of registration subject to availability of seat in the hostel on the basis of merit.*

D. FEE FOR SELF FINANCE SEATS(In Rupees)

S. No.	Programme	Fees/ semester	Total Fees	Fees for additional semester
1.	B.V.Sc. & A.H.	-	10,00,000	50,000
2.	B.Sc. (Hons.)Agriculture	40,000	3,20,000	20,000
3.	M.Sc.(Agriculture, Community Science, Basic Sciences)	40,000	1,60,000	20,000
4.	M.Sc. (Ag.) Agricultural Biotechnology	65,000	2,60,000	32,500
5.	M.V.Sc.	50,000	2,00,000	25,000

Note:

- i. The fee for Self Financing Seat is in addition to usual fee and will be payable by the student who is being admitted against the self financing seat.
- ii. In case of B.V.Sc. & A.H. degree programme 50% of the total fee for self financing seat will be charged at the time of admission and rest in four equal annual installments at the time of Registration each year.
- iii. No fee except boarding and lodging shall be charged from Differently Abled (DA) students. However, such students admitted against Self Financing seat shall have to pay the fee for self financing seats of the respective degree programme.

E. FEE FOR NRIs/FOREIGN NATIONAL CANDIDATES

Fee Structure	Programme-wise Amount (in US\$)		
	B.V.Sc.& A.H.	B.Sc.(Hons.) Agriculture	M.Sc./M.V.Sc.
Admission fee (<i>One time only</i>)	4000	4000	4000
Annual fee	7000	3200	3000
Total Fee (for normal duration of degree)	39000	16800	10000
Hostel accommodation charges per annum (Room rent & charges for other facilities excluding food expenses)	1000	1000	1000
Total fee including Hostel Charges (Normal duration)	44000	20800	12000
Fee for each additional semester/year	3500 per year	1600 per semester	1500 per semester

Refund/Adjustment Policy:

Fees and other charges once paid shall be refunded/adjusted as per following guidelines:

S. No.	Situation	Refund/Adjustment
1.	On receipt of intimation (in writing) from the candidate/student for withdrawing/ vacating the seat before or latest upto cut-off time of reporting (12.00 noon) for walk-in-interview.	Entire fee less by Rs. 1000/- as Processing charges will be refunded.
2.	On request received from a registered student after cut-off time of reporting (12.00 noon) for walk-in-interview and thereafter.	Only security deposits will be refunded.
3.	If a student shifts from SFS seat to general/reserve category seat within the programme on the day of walk-in-interview.	A deduction of Rs. 10,000/- shall be made from the fee for Self-financing seat and balance will be refunded. The normal fee already paid for current semester/full academic year shall be adjusted.
4.	If a student shifts from one programme/discipline to another programme/discipline within the university on the day of walk-in-interview.	Entire fee will be adjusted/refunded after deduction of Rs.1000 or Rs.11000 (on shifting from SFS to non SFS category) as processing fee.
5.	For VCI nominee	
	i) On receipt of intimation in writing before cut-off date from a VCI nominee and on confirmation from VCI, New Delhi regarding nomination of another candidate in his/her place for admission under 15% quota of VCI.	Entire fee less by Rs. 1000/- as Processing charges.
	ii) If a VCI nominee requests in writing for refund after cut-off date of VCI and seat remains vacant.	Only security deposits will be refunded.
6.	For NRI/Foreign National candidates	
	i) On receipt of intimation from the candidate/student for withdrawing/vacating the seat before or latest upto cut-off time of reporting (12.00 noon) for walk-in-interview.	Entire fee less by US\$ 1000/- as Processing charges will be refunded.*
	ii) After cut-off time of reporting (12.00 noon) for walk-in-interview and thereafter.	Entire fee less by US\$ 5000/- as Processing charges will be refunded.*

* The amount will be refunded equal to INR value of the principal amount (FCY – Dollar) remitted to the University account and will not be exceeding the remitted FCY amount at that time. Bank charges, if any, are to be borne by the remitter only.

Note:

- The refund of security to all students shall be made only after the student has obtained the **Clearance Certificate** from the concerned Dean. The refund of security shall be permissible up to a period of one year from the date the student leaves the University. Thereafter, it shall stand credited to the amalgamated fund of the College.
- The electricity charges in excess of collection will be borne equally by the residents of the respective hostels.

Syllabi for B.V.Sc. & A.H. and B.Sc. (Hons.) Agriculture Entrance Test**PHYSICS (2-4 questions from each unit)****(Total 60 questions)****Unit 1: Physical World and Measurement****Physical World:** Physics-scope and excitement; nature of physical laws; Physics, technology and society.**Units and Measurements:** Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.**Dimensions of physical quantities:** dimensional analysis and its applications.**Unit 2: Kinematics****Motion in a Straight Line:** Frame of reference, Motion in a straight line: Position-time graph, speed and velocity.

Elementary concepts of differentiation and integration for describing motion, uniform and non-uniform motion, average speed and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs.

Relations for uniformly accelerated motion (graphical treatment).

Motion in a Plane: Scalar and vector quantities; position and displacement vectors; general vectors and their notations; equality of vectors; multiplication of vectors by a real number; addition and subtraction of vectors; relative velocity; Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors.

Motion in a plane, cases of uniform velocity and uniform acceleration-projectile motion, uniform circular motion.

Unit 3: Laws of Motion**Laws of Motion:** Intuitive concept of force; Inertia; Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces; Static and kinetic friction; laws of friction; rolling friction; lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road).**Unit 4: Work, Energy and Power****Work, Energy and Power:** Work done by a constant force and a variable force; kinetic energy; work-energy theorem; power. Notion of potential energy; potential energy of a spring; conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.**Unit 5: Motion of System of Particles and Rigid Body****System of Particles and Rotational Motion:** Centre of mass of a two-particle system; momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force; torque; angular momentum; law of conservation of angular momentum and its applications. Equilibrium of rigid bodies; rigid body rotation and equations of rotational motion; comparison of linear and rotational motions. Moment of inertia; radius of gyration; values of moments of inertia for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications.**Unit 6: Gravitation****Gravitation:** Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential; escape velocity; orbital velocity of a satellite; Geo-stationary satellites.**Unit 7: Properties of Bulk Matter****Mechanical Properties of Solids:** Elastic behaviour; Stress-strain relationship; Hooke's law; Young's modulus; bulk modulus; shear modulus of rigidity; Poisson's ratio; elastic energy.**Mechanical Properties of Fluids:** Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes); effect of gravity on fluid pressure. Viscosity; Stokes' law; terminal velocity; streamline and turbulent flow; critical velocity; Bernoulli's theorem and its applications. Surface energy and surface tension; angle of contact; excess of pressure across a curved surface; application of surface tension ideas to drops, bubbles and capillary rise.**Thermal Properties of Matter:** Heat; temperature; thermal expansion; thermal expansion of solids, liquids and gases; anomalous expansion of water; specific heat capacity; C_p , C_v - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation; thermal conductivity; qualitative ideas of Blackbody radiation; Wein's displacement Law; Stefan's law; Green house effect.**Unit 8: Thermodynamics****Thermodynamics:** Thermal equilibrium and definition of temperature (zeroth law of thermodynamics); heat, work and internal energy. First law of thermodynamics; isothermal and adiabatic processes. Second law of thermodynamics: reversible and irreversible processes; Heat engine and refrigerator.**Unit 9: Behaviour of Perfect Gases and Kinetic Theory of Gases****Kinetic Theory:** Equation of state of a perfect gas; work done in compressing a gas. Kinetic theory of gases - assumptions, concept of

pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.

Unit 10: Oscillations and Waves

Oscillations: Periodic motion - time period, frequency, displacement as a function of time, periodic functions. Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a loaded spring-restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period. Free, forced and damped oscillations (qualitative ideas only), resonance.

Waves: Wave motion: Transverse and longitudinal waves, speed of wave motion, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.

Unit 11: Electrostatics

Electric Charges and Fields: Electric Charges; Conservation of charge; Coulomb's law-force between two point charges; forces between multiple charges; superposition principle and continuous charge distribution. Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field. Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

Electrostatic Potential and Capacitance: Electric potential; potential difference; electric potential due to a point charge, a dipole and system of charges; equipotential surfaces; electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field. Conductors and insulators; free charges and bound charges inside a conductor. Dielectrics and electric polarisation; capacitors and capacitance; combination of capacitors in series and in parallel; capacitance of a parallel plate capacitor with and without dielectric medium between the plates; energy stored in a capacitor.

Unit 12: Current Electricity

Current Electricity: Electric current; flow of electric charges in a metallic conductor; drift velocity; mobility and their relation with electric current; Ohm's law; electrical resistance; V-I characteristics (linear and non-linear), electrical energy and power; electrical resistivity and conductivity; Carbon resistors; colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance. Internal resistance of a cell; potential difference and emf of a cell; combination of cells in series and in parallel; Kirchhoff's laws and simple applications; Wheatstone bridge, metre bridge. Potentiometer - principle and its applications to measure potential difference and for comparing EMF of two cells; measurement of internal resistance of a cell.

Unit 13: Magnetic Effects of Current and Magnetism

Moving Charges and Magnetism: Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight and toroidal solenoids (only qualitative treatment); force on a moving charge in uniform magnetic and electric fields; Cyclotron. Force on a current-carrying conductor in a uniform magnetic field; force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Magnetism and Matter: Current loop as a magnetic dipole and its magnetic dipole moment; magnetic dipole moment of a revolving electron; magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis; torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid; magnetic field lines; earth's magnetic field and magnetic elements. Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths; permanent magnets.

Unit 14: Electromagnetic Induction and Alternating Currents

Electromagnetic Induction: Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction.

Alternating Current: Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only); LCR series circuit; resonance; power in AC circuits, power factor; wattless current. AC generator and transformer.

Unit 15: Electromagnetic waves

Electromagnetic Waves: Basic idea of displacement current, Electromagnetic waves, their characteristics, their Transverse nature (qualitative ideas only), Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Unit 16: Optics

Ray Optics and Optical Instruments: Ray Optics: Reflection of light; spherical mirrors; mirror formula; refraction of light; total internal reflection and its applications; optical fibres; refraction at spherical surfaces; lenses; thin lens formula; lensmaker's formula; magnification, power of a lens; combination of thin lenses in contact; refraction and dispersion of light through a prism. Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Wave Optics: Wave optics: Wave front and Huygen's principle; reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle, Interference; Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light; diffraction due to a single slit; width of central maximum; resolving power of microscope and astronomical telescope, polarisation; plane polarised light; Brewster's law; uses of plane polarised

light and Polaroids.

Unit 17: Dual Nature of Radiation and Matter

Dual Nature of Radiation and Matter: Dual nature of radiation; Photoelectric effect; Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Matter waves-wave nature of particles; de-Broglie relation; Davisson-Germer experiment.

Unit 18: Atoms and Nuclei

Atoms: Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.

Nuclei: Composition and size of nucleus; Radioactivity; alpha, beta and gamma particles/rays and their properties; radioactive decay law. Mass-energy relation; mass defect; binding energy per nucleon and its variation with mass number; nuclear fission; nuclear fusion.

Unit 19: Electronic Devices

Semiconductor Electronics: Materials, Devices and Simple Circuits: Energy bands in conductors; semiconductors and insulators (qualitative ideas only) Semiconductor diode - I-V characteristics in forward and reverse bias; diode as a rectifier; Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics; zener diode as a voltage regulator. Junction transistor; transistor action; characteristics of a transistor and transistor as an amplifier (common emitter configuration); basic idea of analog and digital; signals Logic gates (OR, AND, NOT, NAND and NOR).

Unit 20: Communication Systems

Communication Systems: Elements of a communication system (block diagram only); bandwidth of signals (speech, TV and digital data); bandwidth of transmission medium, Propagation of electromagnetic waves in the atmosphere, sky and space wave propagation, satellite communication. Need for modulation, amplitude modulation.

CHEMISTRY (1-3 questions from each unit)

(Total 60 questions)

Unit 1: Some Basic Concepts of Chemistry

General Introduction: Importance and scope of chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry .

Unit 2: Structure of Atom

Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

Unit 3: Classification of Elements and Periodicity in Properties

Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

Unit 4: Chemical Bonding and Molecular structure

Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules(qualitative idea only), hydrogen bond.

Unit V: States of Matter: Gases and Liquids

Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles; law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation. Deviation from ideal behaviour, liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea), Liquid State- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations)

Unit 6: Chemical Thermodynamics

Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of ΔU and ΔH , Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction). Introduction of entropy as a state function, Gibb's energy change for spontaneous and nonspontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).

Unit 7: Equilibrium

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors

affecting equilibrium - Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, Henderson Equation, hydrolysis of salts (elementary idea), buffer solution, solubility product, common ion effect (with illustrative examples).

Unit 8: Redox Reactions

Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions.

Unit 9: Hydrogen

Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen, hydrides-ionic, covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen peroxide -preparation, reactions and structure and use; hydrogen as a fuel.

Unit 10: s-Block Elements (Alkali and Alkaline Earth Metals)

Group 1 and Group 2 Elements: General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses.

Preparation and Properties of Some Important Compounds: Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogencarbonate, Biological importance of Sodium and Potassium. Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium.

Unit 11: Some p -Block Elements General Introduction to p -Block Elements

Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties, some important compounds, Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalis, uses.

Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first elements. Carbon-catenation, allotropic forms, physical and chemical properties; uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses.

Unit 12: Organic Chemistry -Some Basic Principles and Technique

General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

Unit 13: Hydrocarbons

Classification of Hydrocarbons

Aliphatic Hydrocarbons:

Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.

Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markownikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.

Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.

Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.

Unit 14: Environmental Chemistry

Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming- pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environmental pollution.

Unit 15: Solid State

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea). Unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties. Band theory of metals, conductors, semiconductors and insulators and nandp type semiconductors.

Unit 16: Solutions

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.

Unit 17: Electrochemistry

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, fuel cells, corrosion.

Unit 18: Chemical Kinetics

Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.

Unit 19: Surface Chemistry

Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic multi-molecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.

Unit 20: General Principles and Processes of Isolation of Elements

Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

Unit 21: "p"-Block Elements

Group -15 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; Nitrogen, preparation properties and uses; compounds of Nitrogen, preparation and properties of Ammonia and Nitric Acid, Oxides of Nitrogen (Structure only) ; Phosphorus - allotropic forms, compounds of Phosphorus: Preparation and Properties of Phosphine, Halides and Oxoacids (elementary idea only).

Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: Preparation, Properties and uses, classification of Oxides, Ozone, Sulphur -allotropic forms; compounds of Sulphur: Preparation Properties and uses of Sulphur-dioxide, Sulphuric Acid: industrial process of manufacture, properties and uses; Oxoacids of Sulphur (Structures only).

Group 17 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens, Preparation, properties and uses of Chlorine and Hydrochloric acid, interhalogen compounds, Oxoacids of halogens (structures only).

Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

Unit 22: "d" and "f" Block Elements

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$.

Lanthanoids - Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.

Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.

Unit 23: Coordination Compounds

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological system).

Unit 24: Haloalkanes and Haloarenes

Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation.

Haloarenes: Nature of C-X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only).

Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

Unit 25: Alcohols, Phenols and Ethers

Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol.

Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.

Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses.

Unit 26: Aldehydes, Ketones and Carboxylic Acids

Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes: uses.

Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

Unit 27: Organic compounds containing Nitrogen

Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

Cyanides and Isocyanides: will be mentioned at relevant places in text.

Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Unit 28: Biomolecules

Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates.

Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure.

Vitamins - Classification and functions.

Nucleic Acids: DNA and RNA.

Unit 29: Polymers

Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.

Unit 30: Chemistry in Everyday life

Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.

Chemicals in food - preservatives, artificial sweetening agents, elementary idea of antioxidants. Cleansing agents- soaps and detergents, cleansing action.

BIOLOGY (5-7 questions from each unit)

(Total 60 Questions)

Unit-1 Diversity of Living Organisms

The Living World: What is living? Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature; tools for study of taxonomy-museums, zoological parks, herbaria, botanical gardens.

Biological Classification: Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups: Lichens, Viruses and Viroids.

Plant Kingdom: Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae (three to five salient and distinguishing features and at least two examples of each category); Angiosperms - classification upto class, characteristic features and examples.

Animal Kingdom: Salient features and classification of animals non-chordates up to phyla level and chordates up to class level (three to five salient features and at least two examples of each category).

Unit-2 Structural Organization in Animals and Plants

Morphology of Flowering Plants: Morphology and modifications: Tissues

Anatomy of Flowering Plants: Anatomy and functions of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed.

Structural Organization in Animals: Animal tissues: Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (a brief account only)

Unit-3 Cell: Structure and Function

Cell-The Unit of Life: Cell theory and cell as the basic unit of life: Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus, nuclear membrane, chromatin, nucleolus.

Biomolecules: Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids, enzymes, types, properties, enzyme action.

Cell Cycle and Cell Division: Cell cycle, mitosis, meiosis and their significance.

Unit-4 Plant Physiology

Transport in Plants: Movement of water, gases and nutrients; cell to cell transport, Diffusion, facilitated diffusion, active transport; plant-water relations, Imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; transpiration, opening and closing of stomata; Uptake and translocation of mineral nutrients - Transport of food, phloem transport, massflow hypothesis; diffusion of gases.

Mineral Nutrition: Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen fixation.

Photosynthesis in Higher Plants: Photosynthesis as a mean of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non cyclic

photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.

Respiration in Plants: Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient.

Plant - Growth and Development: Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; seed dormancy; vernalisation; photoperiodism.

Unit-5 Human Physiology

Digestion and Absorption: Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhoea.

Breathing and Exchange of Gases: Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.

Body Fluids and Circulation: Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.

Excretory Products and Their Elimination: Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system - structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uraemia, renal failure, renal calculi, nephritis; dialysis and artificial kidney.

Locomotion and Movement: Types of movement - ciliary, flagellar, muscular; skeletal muscle- contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal system - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

Neural Control and Coordination: Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse; reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear.

Chemical Coordination and Integration: Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease.

Note: Diseases related to all the human physiological systems in brief.

Unit-6 Reproduction

Reproduction in Organisms: Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction - asexual and sexual reproduction; asexual reproduction - binary fission, sporulation, budding, gemmule formation, fragmentation; vegetative propagation in plants.

Sexual Reproduction in Flowering Plants: Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; outbreeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes-apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

Human Reproduction: Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

Reproductive Health: Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness).

Unit-7 Genetics and Evolution

Principles of Inheritance and Variation: Heredity and variation: Mendelian inheritance; deviations from Mendelism - incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in humans, birds and honey bee; linkage and crossing over; sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular Basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; genome and human and rice genome projects; DNA fingerprinting.

Evolution: Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; adaptive radiation; human evolution.

Unit-8 Biology and Human Welfare

Human Health and Diseases: Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

Strategies for Enhancement in Food Production: Improvement in food production: Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.

Microbes in Human Welfare: In household food processing, industrial production, sewage treatment, energy generation and microbes as biocontrol agents and biofertilizers. Antibiotics; production and judicious use.

Unit-9 Biotechnology and Its Applications

Biotechnology - Principles and processes: Genetic Engineering (Recombinant DNA Technology).

Biotechnology and its Application: Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, bio piracy and patents.

Unit-10 Ecology and Environment

Organisms and Populations: Organisms and environment: Habitat and niche, population and ecological adaptations; population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution.

Ecosystem: Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).

Biodiversity and its Conservation:

Concept of biodiversity; patterns of biodiversity; importance of biodiversity; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, national parks, sanctuaries and Ramsar sites.

Environmental Issues: Air pollution and its control; water pollution and its control; agrochemicals and their effects; solid waste management; radioactive waste management; greenhouse effect and climate change; ozone layer depletion; deforestation; anyone case study as success story addressing environmental issue(s).

MATHEMATICS (4-6 questions from each unit)

(Total 60 Questions)

Unit-1: Sets and Functions

Sets: Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of a set of real numbers especially intervals (with notation). Power set. Universal Set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement.

Relations & Functions: Ordered pairs, Cartesian product of sets. Number of elements in the cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto $R \times R \times R$). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotient of functions.

Trigonometric Functions: Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x . Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of $\sin x$, $\sin y$, $\cos x$ and $\cos y$ and their simple applications. Deducing identities like the following:

$$\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \pm \tan x \tan y}, \quad \cot(x \pm y) = \frac{\cot x \cot y \pm 1}{\cot y \mp \cot x}$$

$$\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2}(\alpha \pm \beta) \cos \frac{1}{2}(\alpha \mp \beta)$$

$$\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$$

$$\cos \alpha - \cos \beta = -2 \sin \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$$

Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$. General solution of trigonometric equations of the type $\sin y = \sin a$, $\cos y = \cos a$ and $\tan y = \tan a$.

Unit-2: Algebra

Principle of Mathematical Induction: Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.

Complex Numbers and Quadratic Equations: Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations (with real coefficients) in the complex number system. Square root of a complex number.

Linear Inequalities: Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical representation of linear inequalities in two variables. Graphical method of finding a solution of system of linear inequalities in two variables.

Permutations and Combinations: Fundamental principle of counting. Factorial n . $(n!)$ Permutations and combinations, derivation of formulae for nPr and nCr and their connections, simple applications.

Binomial Theorem: History, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, General and middle term in binomial expansion, simple applications.

Sequence and Series: Sequence and Series. Arithmetic Progression (A.P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of first n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. Formulae for the following special sums $\sum_{k=1}^n k$, $\sum_{k=1}^n k^2$ and $\sum_{k=1}^n k^3$

Unit-3: Coordinate Geometry

Straight Lines: Brief recall of two dimensional geometry from earlier classes. Shifting of origin. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point-slope form, slope-intercept form, two-point form, intercept form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a line.

Conic Sections: Sections of a cone: circle, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.

Introduction to Three-dimensional Geometry: Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.

Unit-4: Calculus

Limits and Derivatives: Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative, relate it to slope of tangent of the curve, Derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.

Unit-5: Mathematical Reasoning

Mathematical Reasoning: Mathematically acceptable statements. Connecting words/ phrases - consolidating the understanding of "if and only if (necessary and sufficient) condition", "implies", "and/or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and Mathematics. Validating the statements involving the connecting words, Difference between contradiction, converse and contrapositive.

Unit-6: Statistics and Probability

Statistics: Measures of dispersion: Range, mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.

Probability: Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories studied in earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events.

Unit-7: Relations and Functions

Relations and Functions: Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

Inverse Trigonometric Functions: Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.

Unit-8: Algebra

Matrices: Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. Operation on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. Noncommutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

Determinants: Determinant of a square matrix (up to 3 x 3 matrices), properties of determinants, minors, co-factors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.

Unit-9: Calculus

Continuity and Differentiability: Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretation.

Applications of Derivatives: Applications of derivatives: rate of change of bodies, increasing/decreasing functions, tangents and normals, use of derivatives in approximation, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).

Integrals: Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, Evaluation of simple integrals of the following types and problems based on them.

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{a^2 \pm x^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 + bx + c},$$

$$\int \frac{px+q}{ax^2+bx+c} dx, \int \frac{(px+q)}{ax^2+bx+c} dx, \int \sqrt{a^2 \pm x^2} dx, \int \sqrt{x^2 - a^2} dx$$

$$\int \sqrt{ax^2+bx+c} dx, \int (px+q)\sqrt{ax^2+bx+c} dx$$

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.

Applications of the Integrals: Applications in finding the area under simple curves, especially lines, circles/parabolas/ellipses (in standard form only), Area between any of the two above said curves (the region should be clearly identifiable).

Differential Equations: Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type:

$\frac{dy}{dx} + py = q$, where p and q are functions of x or constants.

$\frac{dy}{dx} + px = q$, where p and q are functions of y or constants.

Unit-10: Vectors and Three-Dimensional Geometry

Vectors: Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors, scalar triple product of vectors.

Three - dimensional Geometry: Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines, (ii) two planes, (iii) a line and a plane. Distance of a point from a plane.

Unit-11: Linear Programming

Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

Unit-12: Probability

Probability, Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution, mean and variance of random variable. Repeated independent (Bernoulli) trials and Binomial distribution.

BIOTECHNOLOGY(8-12 questions from each unit)

(60 Questions)

Unit-I Biotechnology: An overview

Historical Perspectives, Technology and Applications of Biotechnology, Global market and Biotech Products, Public Perception of Biotechnology, Biotechnology in India and Global Trends

Unit-II Molecules of Life

Biomolecules: Building Blocks: Building Blocks of Carbohydrates - Sugars and their derivatives, Building Blocks of Proteins - Amino Acids, Building Blocks of Lipids - Simple Fatty Acids, Sphingosine, Glycerol and Cholesterol, Building blocks of Nucleic Acids - Nucleotides, Biochemical Transformations

Macromolecules: Structure & Function: Carbohydrates - The Energy Givers, Proteins - The Performers, Enzymes - The catalysts, Lipids and Biomembranes - The Barriers, Nucleic Acids - The Managers

Unit-III Genetics and Molecular Biology

Concepts of Genetics: Historical Perspective, Multiple Alleles, Linkage and Crossing Over, Genetic Mapping, Gene Interaction, Sex-Linked Inheritance, Extranuclear Inheritance, Quantitative Inheritance, Genes at the Population Level

Genes and Genomes: Structure and Function: Discovery of DNA as Genetic Material, DNA Replication, Fine Structure of the Genes, From Gene to Protein, Transcription - The Basic Process, Genetic Code, Translation, Regulation of Gene Expression, Mutations, DNA Repair, Human Genetic Disorders, Genome Organization

Unit-IV Cells and Organisms

The Basic Unit of Life: Cell Structure and Components, Tissues and Organs, Stem Cells, Biodiversity, Organization of life

Cell Growth and Development: Cell Division, Cell Cycle, Cell Communication, Nutrition, Gaseous Exchange, Internal Transport, Maintaining the Internal Environment, Reproduction, *In Vitro* Fertilization, Animal and Plant Development, Immune Response in Animals, Programmed Cell Death, Defense Mechanisms in Plants

Unit-V Protein and Gene Manipulation

Recombinant DNA Technology: Introduction, Tool of rDNA technology, Making rDNA, Introduction of recombinant DNA into host cells, Identification of Recombinants, Polymerase Chain Reaction (PCR), Hybridization Techniques, DNA Library, DNA Sequencing, Site-directed Mutagenesis

Protein Structure and Engineering: Introduction to the world of proteins, 3-D shape of proteins, Structure-Function Relationship in proteins, Purification of Proteins, Characterization of Proteins, Protein based Products, Designing Proteins (Protein Engineering)

Genomics and Bioinformatics: Introduction, Genome Sequencing Projects, Gene prediction and counting, Genome Similarity, SNPs and comparative Genomics, Functional Genomics, Proteomics, History of Bioinformatics, Sequences and nomenclature, Information Sources, Analysis using Bioinformatics tools

Unit-VI Cell Culture and Genetic Manipulation

Microbial Culture and Applications: Introduction, Microbial Nutrition and culture Techniques, Measurement and Kinetics of Microbial Growth, Scale up of Microbial process, Isolation of Microbial products, Strain Isolation and Improvement, Applications of Microbial culture Technology, Biosafety issues in Microbial Technology

Plant Cell Culture and Applications: Introduction, Cell and Tissue Culture Techniques, Applications of Cell and Tissue Culture, Gene Transfer Methods in Plants, Transgenic Plants with Beneficial Traits, Biosafety in plant genetic of Transgenic Plants

Animal Cell Culture and Applications: Introduction, Animal Cell Culture Techniques, Characterisation of Cell lines, Methods of Gene Delivery into Cells, Scale-up of Animal culture Process, Applications of Animal cell Culture, Stem Cell Technology, Tissue Engineering

AGRICULTURE(4-6 questions from each unit) (60 Questions)

Agriculture and crop production (Unit 1-3):

Unit 1: Scope and Importance

1. Definition of Agriculture, its branches.
2. Scope in the national economy and employment

Unit 2: Physical Environment

1. Climate and Weather, elements of Weather: Rainfall, Temperature, Humidity, Wind, Sunshine, Climate Change and Global warming.
2. Soil, Soil texture and structure and its types, distribution and area.
3. Soil erosion and Soil conservation. Reclamation of problematic soils: acidic and alkali.
4. Tillage: definition and types. Concept of conservation and tillage.

Unit 3: Agriculture Economics and Crop Production

1. Agricultural Economics, Cooperative system in Agriculture, Crop insurance. Kisan Credit Cards, Marketing of Agricultural products (supply chain, retailing, wholesale), haats.
2. Package of practices like important varieties, seed rate, sowing time, intercultural operations, yield and marketing for Rice, Wheat, Maize, Mustard, Sunflower, Soyabean, Groundnut, Black gram, Red gram, Pea, Jute, Sugarcane, Sorghum, Pearl millet and Finger millet.
3. Introduction, distribution and economic importance of fruits: Mango, Banana, Guava, Lime, Grape, Apple, Pomegranate. Vegetables: Potato, Tomato, Cauliflower, Cabbage, Spinach, Brinjal, Bottle gourd, Pumpkin, Cucumber. Flower- Rose, Gladiolus, Marigold.
4. Types of seed-foundation and certified and methods of plant propagation layering and cutting, and Tissue culture.
5. Important farm implements and their maintenance.

Unit 4: Genetics and Plant Breeding

1. Cell and its structure, cell division-Mitosis and Meiosis and their significance in plant growth and development.
2. Introduction to -DNA, RNA, and their differences.
3. Role of Genetics in Plant breeding, self and cross-pollinated crops, methods of breeding in field crops-Introduction, Selection, Hybridization, Mutation.
4. Mendel's laws of Inheritance. Illustrative depiction of the experiments, their importance in plant breeding.

Livestock Production (Unit 5-7):

Unit 5: Scope and Importance

1. Importance of livestock in Agriculture, National Economy and Nutritional security
2. Important animal based food products and their role in our diet.
3. Important indigenous and exotic breeds of cattle, buffalo and poultry; and quantitative and qualitative production details of produces (milk, meat and eggs)

Unit 6: Care and Management

1. Animal body structure and functions.
2. Concept of grazing and stall feeding including poultry feeding.
3. Principles of feeding, feeding practices; Important fodder crops; Silage and Hay preparation; Balanced ration- definition and ingredients.
4. Housing of dairy animals and poultry animals.
5. Management of calves, bullocks, pregnant and milch animals as well as chicks and layers.

6. Production of milk and eggs.
7. Systems of milking by hand and by machine. Important considerations in both these methods.
8. Concept of clean milk production processing, pasteurization and packaging of milk. Value added products from milk.
9. Concept of Anand pattern of cooperative system of milk procurement and pricing of milk. Marketing of milk in India.
10. Principles of disease management and vaccination.
11. Signs of sick animals, symptoms of common diseases in cattle and poultry- Rinderpest, Black quarter, Foot and Mouth, Mastitis, Haemorrhagic Septicaemia, salmonellosis, bird flu, Fowl Pox and Ranikhet disease, their prevention and control.

Unit 7: Bio-Waste Management and Government Schemes

1. Utilisation of animal wastes in Bio-wastes and Biogas plant.
2. Important government schemes for development of livestock, dairy and poultry in India. Their

Unit - 8: Advanced Crop Production

1. Food production including horticultural crops and its importance in the economy and nutritional security.
2. Soil fertility, productivity and concept of essential plant nutrients. Classification of essential plant nutrients.
3. Roles and functions of essential plant nutrients, their important deficiency symptoms.
4. Soil samplings and its processing. Introduction of soil pH and Organic Carbon.
5. Introduction to manure, fertilizers. Bio-fertilizers, their methods of application. Integrated Nutrient Management (INM).
6. Concept of soil moisture availability, various irrigation methods, Concept of precision and pressure irrigation. Drip and sprinkler irrigation.
7. Methods of insect pest and disease management Chemical, Biological and Mechanical. Concept of Integrated Pest Management (IPM).

Unit - 9: Organic Farming

1. Concept, history and importance of Organic farming.
2. Present status and contribution in the National economy.
3. Important food products grown organically. Important Government Schemes for the promotion of organic farming in our country. Kitchen gardening.

Unit - 10: Post Harvest Management

1. Post harvesting management of fruits, vegetables and flowers, cereals, pulses and oilseeds. Status of food processing in our country.
2. Important Government schemes for food sector.

Unit - 11: Food Processing and Value Addition

1. Principles and methods of food processing and preservation. Benefits of food processing.
2. Important value added products from fruits, vegetables, cereals, pulses and oil seeds. Preparation of jam, jelly, ketchup, morabba, pickles, marmalade.
3. Packaging, quality standards and their marketing including export.
4. Flowers and their harvesting, important processed flower products, packaging, storage and their marketing.
5. Concept of safe food and important food regulations.

Unit - 12: Subsidiary Enterprises of Agriculture

1. Important subsidiary enterprises based on Agriculture including Horticulture and their importance in the socio-economic status of an individual.
2. Mushroom, their nutritional status and methods of production.
3. Beekeeping and its important usage and importance of Honey, Wax and Royal jelly.
4. Landscaping, development and maintenance of lawns and avenue gardens.
5. Preparation of Bio-pesticides (plant based), Organic manures (composts) and Vermicomposting.
6. Setting up nurseries and marketing of plant sapling, important Govt. Schemes for the support of these enterprises.

Note: Besides above syllabi, any other question of scientific and educational importance may be asked.

Syllabi for Master's Programmes Entrance Test

The test shall have one paper of 3-hours duration comprising of 180 marks in each of the subject streams- Agriculture, Veterinary & Animal Sciences, Home Science, Basic Science (Medical group) and Basic Science (Non-medical group). The candidate has to choose one of the test streams for Entrance Test. However, his/her admission to a particular Master's Programme will be as per the qualification required for that Master's Programme and fulfilled by the candidate. The syllabus for different subject streams are given below:

Code 4

AGRICULTURE

UNIT I

General Agriculture

40 Questions

Principles of crop production. Improved varieties, cultural practices, major pests and diseases (and their control) of wheat, rice, cotton, sugarcane, pulses, oilseeds and important vegetables, fruits and ornamentals. Breeding method of self-pollinated, cross pollinated and vegetatively propagated crops. Seed certification. Principles of agroforestry. Functions and deficiency symptoms of micro and macronutrients. Organic manures, inorganic and biofertilizers. Handling, processing and preservation of foods of plant and animal origin. Fundamentals of agricultural business and marketing. Extension education in relation to rural development and precision farming, world trade in agriculture, commodities, quarantine and SPS measures, IPRS.

UNIT II Agronomy/Agrometeorology

20 Questions

Farming systems, cropping systems, cropping patterns, cropping schemes and crop plans. Tillage – principles and practices. Seed and seeding practices. Nutrient management – principles and practices of fertilizer use, organic manures, biofertilizers and integrated nutrient management for sustainable agriculture. Crop-weed competition. Principles and practices of weed management. Soil-water-plant relationships. Crop growth, yield and quality interactions. Water management and improving water use efficiency in crops and cropping systems. Dry farming – principles and practices. Management problems and practices for waterlogged, eroded and saline-alkali soils. Physiological processes in crop growth and development. Use of growth regulators for modifying growth and abscission. Physiological maturity and criteria for crop harvest. Seed production techniques for cereal, pulse, oilseed and sugar crops. Physiology of seed development, dormancy and viability. Weather, climate and agriculture. Effects of environmental factors on crop growth and development. Agroecosystem and agrodlimatic zones of India.

UNIT III

Extension Education

15 Questions

Objectives and principles of extension education. Models of communication. Audio-visual aids – classification and importance in extension teaching. Problems in communication and feedback. Role of mass media in diffusion of agricultural technology. Diffusion and adoption processes. Communication skills for technology transfer. Extension teaching methods. Programme planning – principles and procedures. Methods and steps in evaluating extension programmes. Rural development- past strategies and current approaches. Problems in the management of extension programmes. Role and qualities of a good extension worker, supervisor, administrator and local leader. Role and functions of voluntary organizations. Scope and significance of psychology in the formation of social attitudes. Principles of effective teaching-learning. Importance and types of interpersonal perception, human interaction and social 40unction. Barriers in human resource development and establishing good human relations.

UNIT IV

Post Harvest Technology

5 Questions

Importance of post harvest technology in horticultural crops. Maturity indices; Harvesting, post harvest handling and grading of fruits and vegetables. Maturity and ripening process. Physiological and biochemical changes – hardening and delaying ripening process; Post harvest treatments of horticultural crops; Factors responsible for deterioration of harvested fruits and vegetables. Preparation of value added products of horticultural waste; Quality parameters and specifications.

Methods of storage for local/distant markets and export; Pre-harvest treatments; Pre-cooling; Pre-storage treatments; Different systems of storage- Low temperature storage, CA storage, hypobaric storage and low cost storage structures including zero energy cool chamber; packaging technology for local/distant markets and export; Fabrication and Cushioning materials; types of containers; Vacuum packaging Poly-shrink packing; Grape guard packing treatments and modes of transport.

Importance and scope of fruit and vegetables preservation industry in India; principles of preservation; heat, low temperature, chemicals and fermentation; Preservation through canning, bottling, freezing, dehydration, drying, UV and ionizing radiations.

Preparation of jam, jellies, marmalades, candies, crystallized and glazed fruit, preserves, chutney, pickles, ketchup, sauce, puree, syrup, juices, squashes and cordials. Spoilage of canned products, biochemical and enzymatic spoilage. Preservatives, colours permitted and prohibited in India.

UNIT V Horticulture

25 Questions

Pomology: Importance and scope of fruit industry in India. Planning and planting of new orchard. Factors affecting seed dormancy and germination. Plant growth and development. Training and pruning of fruit trees. Fruit bud formation. Problems of pollination and fruit set in orchards. Factors affecting yield and quality of fruits. Nutrition weed management and water requirements in fruit plants. Principles and practices in macro- and micro-propagation and nursery management of fruit plants. Principles and practices in production, handling and processing of citrus, mango, grape, litchi, guava, ber, pear, peach and plum. Methods of evaluation of fruit trees.

Vegetable Crops: Scope, importance and classification of vegetable crops. Role of soil, climate and agronomic factors in potato, tomato, chilli, brinjal, cauliflower, cabbage, radish, carrot, onion, garlic, peas, beans, methi, spinach, muskmelon, pumpkin, bittergourd, bottlegourd and okra. Vegetable forcing. Nursery management. Post-harvest handling, storage and marketing of vegetables. Breeding methods for vegetable crops. Production of nucleus, breeder, foundation, certified and F₁ hybrid seeds. Seed harvesting, processing and storage.

Floriculture and Landscaping: Scope of floriculture and landscaping. Production technology of annuals, rose, chrysanthemum, gladiolus, carnation, cacti and succulents. Post-harvest handling of cut flowers. Flower seed production. Characteristics of different types of gardens. Landscape art principles. Principal groups of plants (trees, shrubs, climbers, shade loving plants, ground covers), their analysis and use in landscape composition. Landscape planning for homes and farm complexes. Rock, water and terrace gardens.

UNIT VI Plant Breeding and Genetics

15 Questions

Mendelian inheritance. Cell division and cell cycle. Chromosome structure and function. Chromosome functional. Polyploidy. Genetic recombination. Gene concept, organization, replication and function of genetic material. One gene – one enzyme hypothesis. Genome analysis. Gene frequency and Hardy-Weinberg equilibrium. Quantitative inheritance. Heritability and response to selection. History and achievements of plant breeding. Germplasm resources – their origin, conservation and utilization. Male sterility, self-incompatibility, mutation and polyploidy in plant breeding. Heterosis and its exploitation. Breeding methods in self-pollinated (pure line and mass selection, pedigree, bulk, SSD and backcross method); cross pollinated (population improvement methods, recurrent selection techniques) and vegetatively propagated crops. Combining ability analysis. Breeding of wheat, rice, cotton, maize, sugarcane, oilseeds and pulse crops. Plant Breeders' Rights. Principles of field plot techniques. Designs for plant breeding experiments. Genotype x environment interaction and stability of varieties. Breeding for diseases and insect-pest resistance in crop plants. Tissue culture, micro-propagation, somaclonal variation, somatic hybridization and production of transgenic plants. Genetic engineering in relation to plant breeding.

UNIT VII Plant Protection

25 Questions

Entomology: Body regions and segmentation in insects. General morphology and anatomy of insects. Integument, moulting and metamorphosis. Modifications of mouth parts and body appendages. Physiology of major organ systems. Biotic potential. Resistance to biotic and abiotic stresses. Population dynamics, functional, food chain, migration and dispersal. Taxonomic categories. Binomial nomenclature. Classification of insects into orders, sub-orders and families of economic importance. Losses due to insect pests and methods of assessment. Principles and methods of pest control. Economic thresholds. Integrated Pest Management. Distribution; host range, nature and extent of damage, life histories and control of insect and mite pests of field, vegetable, plantation and fibre crops, fruit and forest trees, ornamental plants, stored grains and household articles. Novel methods of pest control, host plant resistance and transgenics. Productive insects, pollinators, parasitoids and predators. Pesticides – classification, mode of action and toxicity. Formulations, compatibility, synergism and antidotes. Insecticide resistance and its management. Pest control equipment : principles of working, operation and maintenance.

Plant Pathology: Characteristics of fungal, bacterial and viral pathogens of plants. Plant disease concepts. Classification of plant diseases. Infection, growth, reproduction and dissemination of plant pathogens. Pathogenesis. Variability in plant pathogens. Plant disease epidemics. Nature of host-resistance. Seed health testing. Methods of plant disease management. Distribution, symptoms, etiology, predisposing factors, perpetuation and control of important diseases of field crops (wheat, rice, maize, rape seed and mustard, sunflower, cotton, sugarcane and moong), vegetables (potato, tomato, brinjal, chillies, okra, peas, onion, carrot and cucurbits), fruits (citrus, mango and grapes) and ornamentals (rose, chrysanthemum, gladiolus and carnation).

Nematology: Morphology, biology and control of important genera of nematodes causing diseases of cereals, fruits and vegetables.

UNIT VIII Soil Science**20 Questions**

Weathering of minerals and rocks. Factors of soil formation and their dynamics. Pedogenic processes. Soil survey and mapping. Soil taxonomy. Land suitability evaluation for agriculture. Soils of Punjab and India. Soil colloids. Cation and anion exchange. Soil reaction. Saline and sodic soils – characterization and amelioration. Plant nutrients – functions, deficiency systems, transformation and availability. Soil fertility evaluation and maintenance. Fertilizers and their use efficiency. Concept of integrated fertilizer use. Soil testing – importance and problems. Principles in the determination of available nitrogen, phosphorus, potassium, sulphur and zinc in soils. Analysis of fertilizers and irrigation water. Micro- and macro-organisms in soils and their role in biochemical decomposition of organic manures, farm wastes and nutrient transformations. Biochemistry of humus formation and biogas production. Soil water. Forces of water retention. Saturated and unsaturated water movement, infiltration and redistribution. Criteria for scheduling of irrigation. Soil, water and wind erosion – significance, causes, processes and control. Soil erodibility and rainfall erosivity indices.

UNIT IX Agricultural Economics and Sociology**15 Questions**

Micro Economics, consumption, production, costs, demand and supply and factors affecting them. Forms of market structure and price determination under perfect competition and monopoly. Pricing of factors of production. Micro Economics, Basic Concepts. National income accounting. Theories of consumption and investment. Income determination model including money and interest. Monetary, fiscal, wage and employment policies. Measures of full employment, process causes and remedies of inflation. Farm management. Typical decisions and principles of farm management. Farm records and business accounting. Farm planning. Factor-factor, factor-product and product-product relationships. Agricultural marketing. Types of markets. Methods of sale. Market functions and institutions. Importance of credit institutions. Classification of credit. Three R's of credit. Repayment schedule. Role of economics liberalization in agriculture. Formulation and evaluation of different agricultural products such as dairy, poultry, fishery, floriculture under Punjab conditions. Forest Economics. Importance of agriculture in Indian economy, comparison with other countries. Economic problems in Indian agriculture relating to agricultural production and productivity, credit, marketing and labour. Principles and role of agricultural cooperatives.

Nature and scope of sociology and rural sociology and their relationship with other social sciences. Importance of sociology and rural sociology. Basic concepts; rural social structure; characteristics of rural society; rural urban differences; social control. Elements of social system. Role of social, economic, political, educational and other institutions in India. Some selected village studies. Rural India in transition and the role of rural development programmes. Emerging patterns of rural life in India. Diffusion and adoption of farm technology. Structure and functions of rural community organizations (formal and informal). Process of making decisions and policy for community development through agricultural extension, school systems and other agencies. Social relations and organizations among selected people around the world including kinship, religious, fraternal, occupational and political forms of association. Effects of environment on human association. Value system; social stratification and leadership pattern. Demographic factors, fertility and mortality. Micro and macro dynamics of population. Population policy and economic development. Definition, aims and scope of psychology; methods of psychology; sensation; perception; attention; learning; personality; instinct; feeling; emotion; sentiments. Definition. Concepts of social change; determinants of social change; concepts of structural changes; social, cultural, economic, political and technological change. Change associated with development. Technological breakthrough and social change. Consequences of social change.

Code 5 VETERINARY & ANIMAL SCIENCES**UNIT I Veterinary Biochemistry****10 Questions**

Scope and importance of biochemistry in animal sciences, cell structure and functions. Chemistry and biological significance of carbohydrates, lipids, proteins, nucleic acids, vitamins and hormones. Enzymes— chemistry, kinetics and mechanism of action and regulation. Metabolic inhibitors with special reference to antibiotics and insecticides. Biological oxidation, energy metabolism of carbohydrates, lipids, amino acids and nucleic acids. Colorimetry, spectrophotometry, chromatography and electrophoresis methods.

History of molecular biology, biosynthesis of proteins and nucleic acids, genome organization, regulation of gene expression, polymerase chain reaction, basic principles of biotechnology applicable to veterinary science gene sequence, immunodiagnosics, animal cell culture, in vitro fertilization. Sub-unit vaccines: Principles of fermentation technology. Basic principles of stem cell and animal cloning.

UNIT II Veterinary Anatomy and Veterinary Physiology**20 Questions**

Structure of cells, cell organelles, chromosome structure and functions, cell growth, division and differentiation and functions. Structure and function of basic tissues-epithelium, connective tissue, muscle and nervous tissue. Gross Morphology, Histology and physiology of mammalian organs and systems, major sense organs and receptors, circulatory system. Digestion in simple stomached animals, birds and fermentative digestion in ruminants, Kidney and its functions-respiratory system-animal association-growth-

influence of environment on animal production-biotechnology in animal production and reproduction-electrophysiology of different types of muscle fibres. Exocrine and endocrine glands, hormones and their functions, blood composition and function. Homeostasis, osmoregulation and blood clotting. Gametogenesis and development of urogenital organs. Boundaries of body cavities. Pleural and peritoneal reflections.

UNIT-III Veterinary Microbiology (Bacteriology, Virology, Immunology), Veterinary Pathology, Parasitology 30 Questions

Classification and growth characteristics of bacteria, important bacterial diseases of livestock and poultry, general characters, classification of important fungi. Nature of viruses, morphology and characteristics, viral immunity, important viral diseases of livestock and poultry. Viral vaccines. Antigen and antibody, antibody formation, immunity, allergy, anaphylaxis, hypersensitivity, immunoglobulins, complement system. Etiology of diseases and concept, extrinsic and intrinsic factors, inflammation, degeneration, necrosis, calcification, gangrene, death, atrophy, hypertrophy, benign and malignant tumours in domestic animals. General classification, morphology, life cycle of important parasites, important parasitic diseases (Helminths, Protozoa and Arthropods) of veterinary importance with respect to epidemiology, symptoms, pathogenesis, diagnosis, immunity and control.

UNIT-IV Veterinary Medicine, Epidemiology, Veterinary Surgery and Veterinary Obstetrics & Gynaecology including Reproduction 35 Questions

Clinical examination and diagnosis, Etiology, epidemiology, symptoms, diagnosis, prognosis, treatment and control of diseases affecting different body systems of various species of domestic animals, epidemiology—aims, objectives, ecological concepts and applications. General surgical principles and management of surgical cases. Types, administration and effects of anaesthesia. Principles and use of radiological techniques in the diagnosis of animal diseases. Estrus and estrus cycle in domestic animals, Synchronization of estrus, fertilization, pregnancy diagnosis, parturition, management of postpartum complications dystokias and its management, fertility, infertility and its management, artificial insemination. Male and female reproductive system including artificial insemination, *in-vitro* fertilization, cryo preservation.

UNIT- V Veterinary Public Health, Veterinary Pharmacology & Toxicology 20 Questions

Zoonotic diseases through milk and meat, Zoo animal health. Source and nature of drugs, pharmacokinetics, Chemotherapy-sulpha drugs, antibiotics, mechanism and problem of drug resistance. Drug allergy, important poisonous plants, toxicity of important agro-chemicals and their detoxification, drugs action on different body systems.

UNIT-VI Animal Genetics and Breeding 10 Questions

Principles of animal genetics, cell structure and multiplication. Mendel's laws, principles of population genetics, concept of heredity, heterosis and mutation, principles of evolution, principles of molecular genetics, genetic code, quantitative and qualitative traits. Selection of breeding methods in livestock and poultry. Population statistics of livestock.

UNIT-VII Animal Nutrition, Feed Technology, Animal Physiology 10 Questions

General nutrition, proximate principles, carbohydrates, proteins and fats their digestion and metabolism in ruminants and non-ruminants. Energy partition- measures of protein quality. Water, minerals, vitamins and additives, feeds and fodders and their classification. Common anti-nutritional factors and unconventional feeds. Hay and silage making. Grinding, chaffing, pelleting, roasting, feed block. Feed formulation principles. Digestion- control motility and secretion of alimentary tract. Mechanism, natural and chemical control of respiration, gaseous exchange and transport, high altitude living, physiology of work and exercise. Cardiac cycle, natural control of cardiovascular system. Smooth and skeletal muscle contraction. Blood coagulation. Physiology of immune system. Male and female reproduction including artificial insemination, *in-vitro* fertilization, cryo-preservation. Excretory system.

UNIT VIII Animal Husbandry, Dairy Science, Livestock Production and Management, Animal Product Technology & Meat Science and Poultry Science. 35 Questions

General concepts of livestock production and management, status of dairy and poultry industry, impact of livestock farming in Indian agriculture. Livestock housing, production and reproduction management, lactation management, breeding programmes for livestock and poultry. Composition, quality control and preservation of livestock products, methods of processing and storage livestock products. International Trade/WTO/IPR issues related to livestock products.

UNIT IX Veterinary Extension 10 Questions

Concept of sociology, differences between rural, tribal and urban communities, social change, factors of change. Principles and steps of extension education, community development— aims, objectives, organizational set up and concept evolution of extension in India, extension teaching methods. Role of livestock in economy. Identifying social taboos, social differences, obstacles in the way of organizing developmental programmes. Concept of marketing, principles of co-operative societies, animal husbandry development planning and programme, key village scheme, ICDD, Gosadan, Goshala, Role of Gram Panchayat in livestock development. Basics of statistics, data analysis and computational techniques.

Code 6**HOME SCIENCE****UNIT I Food Science & Nutrition****40 Questions**

Human nutrition, balanced diet, food groups & nutrients, effect of cooking on different nutrients, composition and nutritive value of foods, RDA, meal and menu planning, diet therapy, dietary modifications for different physiological conditions and diseases, institutional food management, community nutrition-assessment of nutritional status and ongoing nutrition programmes for women and children, major national nutritional disorders, national and international agencies, malnutrition-causes and its management, food preservation/processing-principles and methods, food related laws & policies, food analysis and quality control.

UNIT II Human Development**40 Questions**

Introduction to child/ human development- meaning, concept, principles, prenatal development (conception to child birth), care of new born, pre-natal and post natal care of mother, development of child in early and late childhood, early childhood education, adolescence, developmental and relationship with peers & family, marriage and family dynamics, meaning, definition of family life cycle, family welfare Programmes in India, community education, child studies methods, participation in pre-school/ crèche children with special needs.

UNIT III Family Resource Management**40 Questions**

Concept and principles of management, management process, work, work environment, work simplification, fundamentals of housing, principles of design & home furnishing- selection, care and maintenance of accessories, equipments, furniture, family finance and consumer education, marketing and sales management, Functional interiors for special needs.

UNIT IV Clothing & Textiles**30 Questions**

Introduction to clothing construction- sewing machine its parts and use, preparation of fabric for lay out textiles, fibre- classification, processing/ manufacturing method, clothing need of family members, household textile and consumers, weaving and hosiery, traditional textiles and embroideries of India, care of textile finishes, dyeing and printing. Organic dyes.

UNIT V Home Science Extension & Communication Management**30 Questions**

Introduction of Home Science Extension Education; communication and extension methods, programme planning and evaluation, entrepreneurial education, projected and non projected aids (audio-visual aids), rural development programmes in India. Instructional technologies, extension training management, PRA techniques, diffusion and action process, voluntary and non voluntary organization.

CODE 7**BASIC SCIENCE (Medical Group)****Section I****Botany (12 questions from each unit)****60 Questions****UNIT I**

General account of viruses and mycoplasma; bacteria-structure, nutrition, reproduction and economic importance; general account of cyanobacteria; General characters, classification and economic importance of algae; important features and life history of Chlorophyceae, Xanthophyceae; Phaeophyceae and Rhodophyceae; General characters, classification and economic importance of fungi; important features and life history of Mastigomycotina; Zygomycotina, Ascomycotina, Basidiomycotina; Deuteromycotina; general account of Lichens.

UNIT II

Bryophyta: Amphibians of plant kingdom displaying alternation of generations; structure, reproduction and classification of Hepaticopsida; Anthocerotopsida, Bryopsida; Pteridophyta: The first vascular plants; important characteristics of Psilopsida, Lycopsidea, Sphenopsida and Pteropsida; structure, reproduction in Rhynia, Lycopodium, Selaginella, Equisetum, Pteris and Marsilea. General features of gymnosperms and their classification; evolution and diversity of gymnosperms; geological time scale, fossilization and fossil gymnosperms; Morphology of vegetative and reproductive parts; anatomy of root, stem and leaf; reproduction and life cycle of Pinus, Cycas and Ephedra.

UNIT III

Classification of angiosperms; salient features of the systems proposed by Bentham and Hooker and Engler and Prantl. Major contributions of cytology, phytochemistry and taximetrics to taxonomy. Diversity of flowering plants as illustrated by members of the families Ranunculaceae, Brassicaceae, Malvaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae and Poaceae. The shoot apical meristem and its histological organization; vascularization of primary shoot in monocotyledons and dicotyledons; canopy architecture; cambium and its functions; formation of secondary xylem; structure, development and varieties of flowers; structure of anther and pistil; the male and female gametophytes; types of pollination; pollen-pistil interaction, self incompatibility; double fertilization; formation of seed—endosperm and embryo; fruit development and maturation.

UNIT IV

Phases of growth and development; kinetics of growth; plant movements; the concept of photoperiodism; physiology of flowering; fruit ripening; plant hormones; Plant water relationship, mineral nutrition, essential macro-and micro-elements and their role;

mineral uptake; deficiency and toxicity symptoms; photosynthesis and photorespiration, nitrogen metabolism, translocation of photoassimilates, growth and growth hormones; photoperiodism, vernalization; physiology of senescence and aging; dormancy, fruit ripening and its control and biological clocks ;seed dormancy;

UNIT V

Heredity and variation, principles of inheritance; gene interaction, multiple allelism, sex-linked, sex-influenced and sex-limited inheritance; cytoplasmic or maternal inheritance; linkage and crossing-over, gene mutations; transposable genetic elements; chromosomal aberrations (numerical and structural), chromosome mapping; nature ,structure and replication of genetic material; satellite and repetitive DNA, DNA damage and repair; gene structure, gene expression, regulation of gene expression in prokaryotes and eukaryotes; genetic code and Wobble's hypothesis; quantitative inheritance; genes in populations; genetic engineering and biotechnology; genetic disorders in man; tissue culture and its applications; cell transformation and cancer.

Section II Zoology (12 questions from each unit)

60 Questions

UNIT I

Community structure and organization, ecosystem, food chain and energy flow, biogeochemical cycles, pollution (air, water and soil) prevention and remediation, bioindicators, conservation and management of natural resources; ecosystem and biodiversity conservation; Wildlife management.

Concept and evidences of organic evolution, evolutionary theories, natural selection, adaptation and speciation; adaptive radiations, origin of life; zoogeography and faunal distribution ; animal behavior; parasitic organisms and host parasite relationship; pests and pest management; Aquaculture; Sericulture; Apiculture; Toxicology; Bioethics;

UNIT II

Structure of cell, cellular organelles and their structure and functions, cell cycle and cell division; Structure of gene; transfer of genetic information; transcription, translation, protein synthesis; tRNA; ribosomes; Methods in cell biology-light and electron microscopy, cell fractionation methods, chromatography, electrophoresis, radioisotope tracer technique and autoradiography.

Gametogenesis; fertilization ,types of patterns of cleavage, process of blastulation and fate map construction in frog and chick; Gastrulation in frog and chick up to the formation of three germinal layers; Elementary knowledge of primary organizer–concepts and induction. Elementary knowledge of extra embryonic membranes; Concepts of competence, determination and differentiation; Embryonic adaptations and the development of mammals (placentation)–review of placenta in different groups of mammals, physiology of placenta; Metamorphosis-causes and role of hormones in insects and amphibian metamorphosis; Concept of regeneration.

UNIT III

Concept of buffers in living system; structure and function of biomolecules, structural organization of proteins and their sequencing; enzymes and their general mechanism of action, classification, kinetics and regulation, factors affecting enzyme activity, enzyme inhibition; coenzymes and cofactors, metabolism of carbohydrates, fatty acids, proteins (Embden-Mayerhoff pathway, Krebs cycle, Hexose monophosphate shunt, gluconeogenesis, 45unctiona of glucose metabolism; oxidation of triacylglycerol : β -oxidation of fatty acids, metabolism of glycerol, ketone bodies-their formation and utilization, ketosis; mitochondrial and extra-mitochondrial synthesis of fatty acids); and nucleic acids; concept of bioenergetics and respiratory chain; concept of intermediary metabolism; vitamins, hormones and metabolic regulation.

UNIT IV

Functional morphology of the types included with special emphasis on the adaptations to their modes of life and environment. General characters and classification of all phyla up to orders with examples emphasizing their biodiversity, economic importance (Detailed study of all systems of the animals given in parentheses).

Invertebrates: Protozoa(Plasmodium), parasitic protozoans; Porifera(Sycon); Coelenterata(Sea anemone), corals and coral reefs; Helminthes(Liver fluke), Helminth parasites ;Annelida(Nereis), Metamerism, Trochophore larva; Arthropoda(Prawn and Grasshopper);Mollusca (Sepia); Echinodermata(Sea star); Echinoderm larvae .

Vertebrates: Hemichordata(Balanoglossus); Chordates-Origin; Protochordates (Amphioxus), Cephalochordata and Urochordata; Agnatha (Petromyzon); Pisces(Mullet), scales and fins; fish migration, parental care; Amphibia(frog), parental care ; Reptilia(calotes), extinct reptiles, poisonous and non-poisonous snakes, poison apparatus.Aves (pigeon), flight muscles and flight adaptations, bird migration. Mammals(rat), , dentition ,adaptive radiations.

UNIT V

Nutrition–nutritional requirements and disorders; digestion and absorption of dietary components; Respiration–organs of respiration-properties and functions of respiratory pigments, physiology of respiration–dissociation curve of oxyhaemoglobin, respiratory quotient, control of respiration. Blood–composition and function of blood and lymph; blood groups, blood coagulation. Heart–internal structure of mammalian heart; origin, conduction and regulation of heart beat, cardiac cycle and ECG. Excretion: Structure and function of kidney –physiology of urine formation. Regulatory mechanisms: osmoregulation in aqueous and terrestrial animals, mechanism of cell volume regulation; thermoregulation – heat production and loss, physiological mechanisms of

the regulation of body temperature. Neuromuscular co-ordination, nerve physiology—functional architecture of a neuron, morphological classification of nerve cells, propagation of nerve impulse, synaptic and neuromuscular transmission; skeletal and smooth muscle function. Endocrine and Reproductive system—Introduction to endocrinology and the pituitary hormones, thyroid, parathyroid, adrenal, islets of Langerhans, thymus, pineal body, gastrointestinal glands hormones; mechanism of hormone action—categories of hormones, role of cyclic AMP as second messenger in hormone action. Reproductive and hormonal functions of the male and the role of pineal gland in controlling seasonal fertility; pre-pregnancy reproductive functions of the female and the female hormones, regulation of female monthly rhythms, pregnancy and lactation.

Section III CHEMISTRY (10 questions from each unit)

60 Questions

UNIT-I

Electronic configuration of elements, periodic classification of elements, atomic number, atomic and ionic radii, ionization potential, electron affinity and electro negativity, electronic theory of valency, sigma and pi-bonds, hybridization and directional nature of covalent bonds, metallic bonds. VSEPR theory, V.B. and MO theory, ionic solids and weak interactions, Lewis and Bronsted theories of acids and bases, hard soft acid bases (HSAB), oxidation states and oxidation number, common oxidizing and reducing agents, ionic equations. Natural and artificial radioactivity, radioactive decay, nuclear fission and fusion. Chemistry of the common elements and their compounds. Principles of extraction isolation (and metallurgy) of important elements. Chemistry of transitional elements, lanthanides and actinides. Structure of hydrogen peroxide, diborane, aluminiumchloride and the important oxyacids of nitrogen, phosphorus, chlorine and sulphur, interhalogen compounds.

Outlines of the manufactures of : sodium carbonate, sodium hydroxide, ammonia, nitric acid, sulphuric acid, cement, glass ceramics and artificial fertilizers.

Inert gases: Isolation and Chemistry, structure of inert gas compounds.

Werner's theory of coordination compounds, V.B. and M.O. theory of bonding in metal complexes, electronic spectrum, magnetic and spectral properties of metal complexes. Organo metallic compounds. Bioinorganic chemistry, biological role of alkaline earth metal ions, metalloporphyrins.

Analytical chemistry: Principles and methods of chemical analysis, principles involved in separation techniques, chromatography.

UNIT-II

Modern concepts of covalent bonding, bond lengths, energy and bond angles, electron displacement, inductive, electrometric, mesomeric and hyper conjugative effects, resonance and its applications to organic chemistry, tautomerism effects of structure on chemical reactions, dissociation constants.

Mechanism of organic reactions : Types of reagents and organic reactions, reaction intermediates, product analysis, isotope effect, kinetic and stereo chemical studies.

Stereochemistry: Optical and geometrical isomerism, chirality, enantiomers, stereogenic centers, diastereomers, resolution and racemization, relative and absolute configuration, sequence rules. E&Z and R&S nomenclature, concept of conformation and conformation analysis of ethane, butane and cyclohexane sugars.

UNIT-III

Elementary quantum mechanics Gaseous states: Kinetic theory of gases and gas laws, Maxwell's law of distribution of velocities, Vander Waal's equation. Law of corresponding states. Liquification of gases . Ratio of C_p/C_v .

Thermodynamics: The first law of thermodynamics, Isothermal and adiabatic expansion, Enthalpy, heat capacities. Thermochemistry—heats of reaction, formation, solution and combustion. Calculation of bond energies, Kirchhoff equation, Criteria for spontaneous changes, second law of thermodynamics entropy, Free energy, criteria of thermodynamic equilibrium.

Solutions: osmotic pressure lowering of vapour pressure, depression of freezing point, elevation of boiling point, determination of molecular weights, association and dissociation of solutes.

Chemical equilibrium, law of mass action and its application to homogeneous and heterogeneous equilibrium i.e. Chaterlier's principle, Influence of temperature on chemical equilibrium.

Electrochemistry: Faraday's laws of electrolysis, conductivity of an electrolyte: equivalent conductivity and its variation with dilution, solubility of sparingly soluble salts, electrolytic dissociation, Ostwald's dilution law, anomaly of strong electrolytes.

Solubility product, strength of acids and bases: hydrolysis of salts, hydrogen ion concentration buffer action, theory of colors.

Electro chemical cells: reversible cells, standard Hydrogen and calomel electrodes and redox-potentials, concentration cells.

Determination of pH transport number and ionic product of water. Potentiometer titration, chemical kinetics : Molecularity of a reaction. First order and second order reactions. Determination of order of reaction, temperature coefficients energy of activation.

Collision theory of reaction rates .Activated complex theory.

UNIT-IV

Chemistry and reactions of derivative of aliphatic and aromatic compounds including: Alkanes, alkynes and alkenes, arenes and aromaticity, benzene and polynuclear hydrocarbons, alkyl and aryl halides, SN_1 , SN_2 and SN_i reactions, nuclear and side chain reactions, aromatic substitutions reactions, elimination reactions. Aliphatic and aromatic alcohols and phenols, ethers and epoxides, aliphatic and aromatic aldehydes and ketones, aliphatic and aromatic carboxylic acids and their derivatives, aliphatic and aromatic amines and amides, synthetic applications of diazonium salts. Amino-acids. Reactions and applications of organometallic compounds. Acetoacetic and malonic esters, Organic synthesis via enolates.

UNIT-V

Heterocyclic compounds, pyridine, quinoline, thiophene, furan and pyrrole.

Important organic name reactions and rearrangements of synthetic importance.

Carbohydrates, classification and general reactions, glucose, fructose and amino acids and proteins, terpenoids and alkaloids. Polymers, dyes and pigment.

Theory and application of spectral techniques. UV, IR and NMR in structure elucidation of simple organic molecules.

UNIT-VI

Phaserule: Explanation of the terms involved. Applications to one and two component system, reduced phase rule distribution law.

Sols.: General Nature of colloidal solutions and their classification. General methods of preparation and properties of sops. Coagulation. Protective action. Gold number. Adsorption phenomenon and adsorption isotherms.

Catalysis : Homogeneous and heterogeneous catalysis, catalytic promoters and poisons. Law of photochemistry, Simple numerical problems

CODE 8 BASIC SCIENCES (Non-medical group)

Section I Physics (10 questions from each unit)

60 Questions

Unit I Mechanics & Theory of Relativity

Co-ordinate Systems and Motion of a Particle: Cartesian and Spherical co-ordinate systems, Conservation Laws, Hooke's law, Inverse Square Force Law: Various forces in nature, Kepler's laws, Kinematics of Elastic and Inelastic Collisions, Elastic collisions in laboratory and C.M. systems, Frame of References, Inertial frames, Non-inertial frames, Special Theory of Relativity, Michelson- Morley experiment, Postulates of special theory of relativity, Lorentz transformation, length contraction, time dilation. Crystal Structure: Periodicity, unit cell, primitive cell, lattice types, packing fraction, Miller indices and lattice planes, simple structure of NaCl. Diffraction Methods, Bragg's law, Crystal Bonding. Free Electrons Theory of Metals, Fermi energy and Fermi velocity, Band Theory of Metals: energy bands, energy gaps, metals, insulators, semiconductors.

Unit II Vector Analysis and Electrostatics

Vector Algebra: Scalar and vector products. Vector Calculus: Scalar and vector fields, differentiation of vector with respect to scalars, gradient, divergence, curl operations and their meaning; Idea of line, surface and volume integrals; Gauss's, Stoke's and Green's theorems, Coulomb's law and Gauss's Law. Electric Potential: Work and potential difference, potential difference as line integral of field; Displacement vector, Electric Current and Field of Moving Charges: Continuity equation and its explanation, invariance of charge; E in different frames of reference, Biot Savart's Law and its applications; Ampere- circuital law and its applications; Para magnetism; ferromagnetism; domain theory of ferromagnetism, magnetization curve. Time Varying Fields: Faraday's law, Maxwell's equations.

Unit III Statistical Physics and Thermodynamics

Basic approach in the three statistics, Need for quantum statistics, comparison of M-B, B-F, F-D statistics, Applications to liquid helium. Free electrons (Fermi level and Fermi Energy), and photons in black body chamber.

Statistical Interpretation of Entropy: Statistical definition of entropy, change of entropy of system, additive nature of entropy, law of increase of entropy; reversible and irreversible processes, example of reversible and irreversible processes; work done in a reversible process; example of entropy in natural process; entropy and disorder. Maxwell's Thermodynamic Relations.

Unit IV Nuclear Physics

General Properties of Nuclii, reasons for non-existence of electrons in nucleus and acceptability of neutron-proton model. Nuclear Models: Assumptions of liquid drop model of nucleus, semi-empirical mass formula predictions of shell models. Radioactivity, Modes of Decay, half life and mean life, unit of radioactivity, radioactive dating, radioactive tracers, qualitative discussion of alpha, beta and gamma rays spectra, Geiger-Nuttal law, Particles Accelerators and Detector, G.M. counter, scintillation counter, bubble chamber. Cosmic Rays and Elementary particles: Nature of cosmic rays, primary and secondary cosmic rays, discovery of elementary particles in cosmic ray studies.

Unit V Oscillations and Waves

Fourier Series, Fourier expansions, Dirac-delta function. Simple and damped harmonic motion: Potential well and periodic oscillations, S.H.M. of mechanical and electrical systems. Lissajous figures, case of different frequencies. The Forced Oscillator: Transient and steady behavior of forced oscillator. Coupled Oscillators: Stiffness coupled pendulums, normal co-ordinates and normal modes of vibration, The types of waves. Acoustics: Reflection, refraction and diffraction of sound; acoustic impedance of medium, principle of a sonar system, sound ranging. Applied acoustics: Transducers and their characteristics, recording and reproduction of sounds E.M. waves; reflection and transmission of wave at a boundary for normal incidence. Geometrical Optics: Fermat's principle: principle of extreme path, the aplanatic points of sphere and other applications. General theory of image formation: Matrix methods in optics, Ramsden and Huygen's eye pieces. Polarization, Unpolarised light, production and analysis of polarized light. Interference: The principle of superposition, two slit interference, Diffraction: Huygen's principle. Laser System: Purity of a special line, coherence length and coherence time, spatial coherence of a source, Einstein's A and B coefficients, spontaneous and induced emissions, conditions for laser action, population inversion.

Unit VI Quantum Mechanics and Electronics

Introductory Quantum Mechanics: Einstein photoelectric equation, Compton effect: theory and experiment; wave nature of particle, de Broglie wave equation and its applications; the uncertainty principle and its application, quantum numbers, L-S and J-J coupling; Zeeman effect spectra of alkali and alkaline earth atoms, Raman effect, X-rays : Production properties and diffraction of x-rays,

Mosley law, Auger effect. Junction Diodes: p-n junctions, biased junction, Transistors: Characteristics of a transistor in CB, CE and CC mode, FET, Structure and Working, Amplifiers: Small signal amplifiers: tuned collector, Hartley and Colpitts oscillators, phase shift oscillator. Modulation and detection: AM and FM (Mathematical treatment included), power in AM and generation of AM; Detector; radio transmitter, radio wave propagation, ionosphere; radio receivers. Television: Camera, the image orthicon, scanning and synchronization, picture tube, channel width, colour TV.

Section II Mathematics (5 questions from each unit)

60 Questions

Unit I Algebra and Trigonometry

Elementary operations on matrices. Inverse of a matrix. Linear independence of row and column vectors. Dimensions of row and column spaces. Row rank, column rank and rank of a matrix (normal form). Equivalence of column and row ranks. Eigen values, eigenvectors and the characteristic equation of a matrix. Cayley Hamilton theorem and its use in finding inverse of a matrix. Applications of matrices to a system of linear (both homogenous and non-homogeneous) equations. Theorems on consistency of a system of linear equations. Relations between the roots and coefficients of general polynomial equation in one variable. Transformation of equations, Horner's method. Descartes' rule of signs. Solution of cubic equations (Cardon's method). Biquadratic equation (Ferrari's method, Descartes Method).

De Moivre's theorem and its applications. Direct and inverse circular and hyperbolic functions. Logarithm of a complex quantity. Expansion of trigonometrical functions. Gregory's series. Summation of finite trigonometrical series depending on a G.P.

Unit II Calculus

ϵ - δ definition of the limit of a function. Basic properties of limits. Continuity, Properties of continuous functions. Classification of discontinuities. Uniform continuity (definition and examples). Differentiability. Successive differentiation. Leibnitz theorem. Rolle's theorem, Mean Value Theorems. Taylor's and Maclaurin theorems with various form of remainders. Maclaurin and Taylor series expansions. Indeterminate Forms. Asymptotes and multiple points. Curvature, Concavity, Convexity and Points of inflexion. Multiple points. Tracing of curves in Cartesian and polar coordinates.

Reduction formulae:

$$\int \sin^n x dx, \int \cos^n x dx, \int e^{ax} x^n dx, \int x^n (\log x)^m dx, \int x^n \sin x dx, \int x^n \cos x dx, \int \sin^n x \cos^m x dx, \int_0^{\pi/2} \sin^n x dx, \int_0^{\pi/2} \cos^n x dx, \int_0^{\pi/2} \sin^n x \cos^m x dx$$

Unit III Differential equations

Basic theory of Linear differential equation. Linear differential equation (homogeneous and non-homogeneous) with constant coefficients of dependent variables & its derivative. Method of variation of parameters. Linear differential equations with variable co-efficients, Cauchy Euler equations. Differential operators and operator method, homogeneous linear system with constant coefficients (two equations in two unknowns). Equations solvable for p, y, and x. Singular solution of differential equation: Discriminant, envelop, singular solution, Clairaut's equation.

Unit IV Vector Analysis

Scalar and vector product of three vectors. Product of four vectors. Reciprocal Vectors. Vector differentiation. Gradient of a scalar vector, divergence and curl of vector. Vector integration. Double Integrals, Double Integral over a region, Green's Theorem, Change of variables.

Unit V Geometry

General equation of second degree. System of conics. Confocal conics. Polar equation of a conic sphere, Cone, Cylinder. Central conicoids. Paraboloids. Plane Sections of Conicoids. Generating lines. Confocal Conicoids. Reduction of Second degree equations.

Unit VI Advanced Calculus

Definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences and their convergence. Cauchy's convergence criterion. Algebra of sequences, some important theorems, Monotonic sequences, Series of non-negative terms. Comparison tests [Cauchy's integral test. Ratio tests. Raabe's logarithmic test, Gauss test (without proofs). Alternating series. Leibnitz's test. Absolute and conditional convergence. Limit and continuity of functions of two variables. Partial differentiation, change of variables. Euler's Theorem on homogeneous functions, Taylor's theorem for functions of two variables. Jacobians. Envelopes. Evolutes. Maxima, minima, and saddle points of functions of two variables. Lagrange's multiplier method. Quadrature rectification, volumes and surfaces of solids of revolution in Cartesian and parametric forms. Beta and Gamma functions. Triple integrals. Theorem of Gauss', Green and Stokes' (statement only) and problems based on these.

Unit VII Mechanics

Analytical conditions of equilibrium of coplanar forces. Virtual work. Forces in three dimensions. Poinsot's central axis, Wrenches. Null lines and planes. Stable and unstable equilibrium.

Simple harmonic motion. Motion on rough plane curve. Tangential and Normal accelerations. Motion in a resisting medium. Motion when the mass varies. Velocity along Radial and transverse directions. Central orbits.

Kepler's laws of motion. Motion of a particle in three dimensions. Accelerations in terms of Polar and Cartesian coordinate systems.

Unit VIII Partial differential equations

Partial differential equations of the first order in two independent variables. Formulation of first order partial differential equation. Solution of linear first order partial differential equations (Lagrange's Method). Solution of non-linear partial differential equation by Charpit's method.

Origin and classification of second order partial differential equation. Solution of Linear partial differential equations with constant coefficients. Monge's methods to solve the non-linear partial differential equation $Rr+Ss+Tt=V$. Solution by Power Series method and its bases. Solution of Bessel, Legendre equations. Properties of Bessel and Legendre functions. Orthogonal functions.

Unit IX Calculus of variation and Laplace Transformation

Variational problems with fixed boundaries- Euler's equation for functional containing first order derivative and one independent variable. Extremals. Functionals dependent on higher order derivatives. Functionals dependent on more than one independent variable. Variational problems in parametric form. Invariance of Euler's equation under coordinates transformation. Variational Problems with moving boundaries- Functionals dependent on one and two functions. Sufficient conditions for an Extremum- Jacobi and Legendre conditions. Second variation. Variational principle of least action (statement only). Introduction, basic theory of Laplace transform. Laplace transform solution of initial value problem Shifting Theorems (shifting on s-axis, translation t-axis). Differentiation and integration of transforms. Convolution theorem.

Unit X Real and Complex Analyses

The Riemann integral: Definition and existence of Integral, refinement of partitions, Daraboux theorem, condition of Integrability. Integrability of sum and difference of integrable functions. The fundamental theorem of integral calculus. Mean value theorems of calculus (1st and 2nd). Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests. Series of arbitrary terms. Convergence, divergence. Abel's and Dirichlet's tests. Partial derivation and differentiability of real- valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem (case of two variables). Fourier Series. Euler's formula, even and odd functions, half range expansions. Complex numbers, Geometric representation of Complex numbers. Analytic functions. Cauchy- Riemann equations. Conformal mappings. Bilinear transformation, Mobius transformations.

Unit XI Abstract Algebra, Metric and Inner Product Spaces

Mappings, Elementary properties of integers, definition of a group with examples and simple properties. Subgroups .A counting principle, normal subgroups, Quotient groups. Homomorphism, Group Automorphisms, Cayley's theorem, permutation groups, another counting principle. Fields, Vector Spaces, Subspaces, Bases and Dimension, Linear Transformations. The algebra of Linear Transformations, Isomorphism, Representation of Transformations by Matrices, Linear Functionals. The Double Dual and the Transpose of a Linear Transformation. Definition and examples of metric spaces. Limits in metric spaces. Functions continuous on a metric spaces. Open and closed sets. Connected sets. Complete metric spaces. Compact metric spaces. Continuous functions on compact metric spaces. Uniform continuity. Inner product Spaces- Cauchy- Schwarz inequality. Orthogonal vectors. Orthogonal complements. Orthogonal sets and bases. Bessel's inequality for finite dimensional spaces. Gram- Schmidt Orthogonalization process. Linear functional adjoints.

Unit XII Computer

Introduction to computers, fundamentals, peripherals of PCs, software and hardware, Evolution, Operating System, Structural computer Languages: programming in C, WINDOWS Operating Systems, Number systems and computer architecture. Computational methods for Numerical Analysis: Algebraic and Transcendental equations, systems of simultaneous equations. Interpolation and Differentiation, solution of ordinary differential equations with initial value and boundary value problems.

Section III CHEMISTRY (10 questions from each unit)

60 Questions

UNIT-I

Electronic configuration of elements, periodic classification of elements, atomic number, atomic and ionic radii, ionization potential, electron affinity and electro negativity, electronic theory of valency, sigma and pi-bonds, hybridization and directional nature of covalent bonds, metallic bonds. VSEPR theory, V.B. and MO theory, ionic solids and weak interactions, Lewis and Bronsted theories of acids and bases, hard soft acid bases (HSAB), oxidation states and oxidation number, common oxidizing and reducing agents, Ionic equations. Natural and artificial radioactivity, radioactive decay, nuclear fission and fusion. Chemistry of the common elements and their compounds. Principles of extraction isolation (and metallurgy) of important elements. Chemistry of transitional elements, lanthanides and actinides. Structure of hydrogen peroxide, diborane, aluminiumchloride and the important oxyacids of nitrogen, phosphorus, chlorine and sulphur, interhalogen compounds.

Outlines of the manufactures of : sodium carbonate, sodium hydroxide, ammonia, nitric acid, sulphuric acid, cement, glass ceramics and artificial fertilizers.

Inert gases: Isolation and Chemistry, structure of inert gas compounds.

Werner's theory of coordination compounds, V.B. and M.O. theory of bonding in metal complexes, electronic spectrum, magnetic and spectral properties of metal complexes. Organo metallic compounds. Bioinorganic chemistry, biological role of alkaline earth metal ions, metalloporphyrins.

Analytical chemistry: Principles and methods of chemical analysis, principles involved in separation techniques, chromatography.

UNIT-II

Modern concepts of covalent bonding, bond lengths, energy and bond angles, electron displacement, inductive, electrometric, mesomeric and hyper conjugative effects, resonance and its applications to organic chemistry, tautomerism effects of structure on chemical reactions, dissociation constants.

Mechanism of organic reactions : Types of reagents and organic reactions, reaction intermediates, product analysis, isotope effect, kinetic and stereo chemical studies.

Stereochemistry: Optical and geometrical isomerism, chirality, enantiomers, stereogenic centers, distereomers, resolution and recemization, relative and absolute configuration, sequence rules. E&Z and R&S nomenclature, concept of conformation and conformation analysis of ethane, butane and cyclohexane sugars.

UNIT-III

Elementary quantum mechanics Gaseous states: Kinetic theory of gases and gas laws, Maxwell's law of distribution of velocities, Vander Waal's equation. Law of corresponding states. Liquification of gases . Ratio of Cp/Cv.

Thermodynamics: The first law of thermodynamics, Isothermal and adiabatic expansion, Enthalphy, heat capacities. Thermochemistry-heats of reaction, formation , solution and combustion. Calculation of bond energies, Kirchhoff equation, Criteria for spontaneous changes, second law of thermodynamics entropy, Free energy, criteria of thermodynamic equilibrium.

Solutions: osmotic pressure lowering of vapour pressure, depression of freezing point, elevation of boiling point, determination of molecular weights, association and dissociation of solutes.

Chemical equilibrium, law of mass action and its application to homogeneous and heterogeneous equilibrium i.e. Chaterlier's principle, Influence of temperature on chemical equilibrium.

Electrochemistry: Faraday's laws of electrolysis, conductivity of an electrolyte: equivalent conductivity and its variation with dilution, solubility of sparingly soluble salts, electrolytic dissociation, Ostwald's dilution law, anomaly of strong electrolytes.

Solubility product, strength of acids and bases: hydrolysis of salts, hydrogen ion concentration buffer action, theory of colors.

Electro chemical cells: reversible cells, standard Hydrogen and calomel electrodes and redox-potentials, concentration cells.

Determination of pH transport number and ionic product of water. Potentiometer titration, chemical kinetics : Molecularity of a reaction. First order and second order reactions. Determination of order of reaction, temperature coefficients energy of activation. Collision theory of reaction rates .Activated complex theory.

UNIT-IV

Chemistry and reactions of derivative of aliphatic and aromatic compounds including: Alkanes, alkynes and alkenes, arencs and aromaticity, benzene and polynuclear hydrocarbons, alkyl and aryl halides, SN1, SN2 and Sni reactions, nuclear and side chain reactions, aromatic substitutions reactions, elimination reactions. Aliphatic and aromatic alcohols and phenols, ethers and epoxides, aliphatic and aromatic aldehydes and ketones, aliphatic and aromatic carboxylic acids and their derivatives, aliphatic and aromatic amines and amides, synthetic applications of diazonium salts. Amino-acids. Reactions and applications of organometallic compounds. Acetoacetic and malonic esters, Organic synthesis via enolates.

UNIT-V

Heterocyclic compounds, pyridine, quinoline, thiophene, furan and pyrole.

Important organic name reactions and rearrangements of synthetic importance.

Carbohydrates, classification and general reactions, glucose, fructose and amino acids and proteins, terpenoids and alkaloids. Polymers, dyes and pigment.

Theory and application of spectral techniques. UV, IR and NMR in structure elucidation of simple organic molecules.

UNIT-VI

Phaserule: Explanation of the terms involved. Applications to one and two component system, reduced phase rule distribution law.

Sols.: General Nature of colloidal solutions and their classification. General methods of preparation and properties of sops. Coagulation. Protective action. Gold number. Adsorption phenomenon and adsorption isotherms.

Catalysis: Homogeneous and heterogeneous catalysis, catalytic promoters and poisons. Law of photochemistry, Simple numerical problems

Note: Besides above syllabi, any other question of scientific and educational importance may be asked.

RULES FOR ADMISSION UNDER SPORTS/CO-CURRICULAR ACTIVITIES SUB CATEGORY

The admission under Sports/Co-curricular activities sub category will be governed under Academic Regulation 2.8.2 (iii) as per the criteria mentioned below:-

The minimum Academic Eligibility Criterion for consideration under sports category shall be 50% of the marks obtained by the topper in the entrance examination of the respective stream in the particular year including Master's Programme. Once academically eligible, the merit of the candidate shall be determined solely on the basis of his/her aggregate score in sports/ co curricular activities as per the table given below:

Score for Sports/Co-curricular Activities:

A. Sports/Games		Score
i.	Sportsperson(s) who have represented the country in any International Competition like Olympic games/World Championship and obtained 1 st , 2 nd or 3 rd position.	7
ii.	Sportsperson(s) who have represented the country in an International competition like Olympic games/World championship.	4
iii.	Sportsperson(s) who have represented the state in a National Competition and obtained 1 st , 2 nd or 3 rd position. OR Sportsperson(s) who have represented the State School Teams in the National Sports/Games for School conducted by the All India School Games Federation and obtained 1 st , 2 nd or 3 rd position.	3
iv.	Sportsperson(s) who have represented the state in a National Competition. OR Sportsperson(s) who have represented the State School Teams in the National Sports/Games for School conducted by the All India School Games Federation.	2
v.	Sportsperson(s) who have obtained 1 st , 2 nd or 3 rd position by representing their University in the Inter University Competition conducted by the Inter University Sports Board/ICAR. OR Sportsperson(s) who have obtained 1 st , 2 nd or 3 rd position at the State Sports/Games organized by the State Govt. OR Sportsperson(s) who have obtained 1 st , 2 nd or 3 rd position in the National Championship organized by Navodaya Vidyalaya and Central School.	2
vi.	Sportsperson(s) who have represented their University in the Inter University tournament conducted by the Inter University Sports Board/ICAR. OR Sportsperson(s) who have represented the District Teams at the State School Sports/Games.	1
vii.	Sportsperson(s) who have obtained 1 st , 2 nd or 3 rd position at the university level/district level.	1
B. N.C.C.		
i.	Having "C" certificate and participated in the National Republic Day Parade.	3
ii.	Having "C" certificate only or participated in the National Republic Day Parade.	2
C. Scouting		
i.	Having participated in Jamboori organized by Govt. of India at National level and having certificate of appreciation from the President of India.	3
ii.	Participated in Jamboori in the State/Govt. of India.	2
D. N.S.S.		
i.	Participated in National Integration Camps or Camp organized by Govt. of India outside the State with a minimum attendance of 240 hours.	2
ii.	Participated in National Integration Camp organized by Govt. of India. OR Any camp organized by the State Govt.	1

E. Cultural Activities (Literary activities and fine arts)		
i.	Participated at International level and obtained 1 st , 2 nd or 3 rd position.	5
ii.	Participated at International level.	4
iii.	Participated at National level and obtained 1 st , 2 nd or 3 rd position.	3
iv.	Participated at National level.	2
v.	1 st , 2 nd or 3 rd position at the Inter University level/State level/ICAR organized Youth Festival	2
vi.	Participation at the Inter University/State Level/Youth Festival organized by ICAR.	1
vii.	1 st , 2 nd or 3 rd position at University/District Level.	1
<p>Provided that:</p> <ol style="list-style-type: none"> The position obtained/participation made is not earlier than five academic years preceding the year of admission. All the scores obtained by the candidate shall be aggregated, irrespective of their number of participation, and the merit shall be made only on the basis of score obtained for Sports/Co-curricular activities. The Games/Sports should have been organized by any one of the following agencies/bodies: <ol style="list-style-type: none"> International Sports Federations – affiliated with International Olympic Association All Sports Federations of India – affiliated with Indian Olympic Association All States Sports Associations - affiliated with State Olympic Association All Districts Sports Associations - affiliated with District Olympic Association State Sports Council/State Youth Welfare and Sports Department National School Sports Federation of India State School Sports Association District School Sports Association Navodaya Vidyalaya, Kendriya Vidyalaya, Army School, ISC, ICSE, CBSE School Sports All India Inter University Sports Board (AIU), ICAR University level sports Sports Authority of India Any sports recognized with Ministry of Sports (Government of India) All Sports/Games/Cultural activities (literary activities and fine art) recognized by the Association of Indian Universities (AIU)/Indian Agricultural University Association (IAUA)/ICAR/Himachal Government will only be recognized by the CSKHPKV for award of score in admissions to various programmes under sports quota. In case of candidates having equal aggregate scores under sports category, a candidate with higher percentage of marks, drawn for the purpose of admission, shall be placed higher in merit. If this percentage is also equal, the candidate older in age shall be placed higher in merit. 		

(AFFIDAVIT BY THE STUDENT)

(To be filled at the time of admission)

The affidavit is to be filled ONLINE. Please consult www.amanmovement.org**Step 1.****Online Affidavit**

Click it.

Check Complaint Status

I have registered but have not received my affidavit on email.

Please resend it.

Contact us

Step 2.

ANTI RAGGING AFFIDAVITS BY STUDENTS AND PARENTS/GUARDIANS

TO BE FILLED BY A STUDENT

Fields marked with * are compulsory.

If you do not have an E mail address please create one before you fill in this form.

- If your mother or father or guardian does not have a phone or a mobile phone or email then please give the numbers /email of their friends or relations or neighbours.
- If you do not have a mobile number, then please give the mobile number of your friend in the college.
- After filling this form successfully you will receive the Student's Anti Ragging Affidavit and the Parents Anti Ragging Affidavit in your Email. Please print both the Affidavits, sign them yourself, request your parents to read the details and request them to sign their affidavit and then present both at your college at the time of registration, each year.

Personal Details (1/5)

*Student's last name :

Student's middle name :

*Student's first name :

*Gender :

Male

Female

*Nationality :

*Student's mobile number :

+91

*Student's friend's mobile No. in case of emergency :

+9

*Landline number :

+9

*Student's email ID :

*Confirm student's email ID :

*Permanent Address 1 :

Address 2 :

*City :

*State :

SPECIMEN OF CERTIFICATES TO BE SUPPLIED BY THE SUCCESSFUL CANDIDATE ON THE DAY OF COUNSELLING
SPECIMEN CERTIFICATES

The specimen certificates for Form I, II, III & V shall be as per the instructions issued by the Government of Himachal Pradesh from time to time.

FORM I

Office of _____

Seal

FORM-G

(See para 28.14)

CERTIFICATE OF BONAFIDE HIMACHALI

No.....

Dated:

Certified that Sh./Ms. _____ resident of _____
 Tehsil _____ District _____ (H.P.) is a Bonafide Himachali
 having his/her permanent home in Himachal Pradesh.

OR

- i) Residing in Himachal Pradesh for a period of 25 years or more.
- ii) Having a permanent home in Himachal Pradesh but living outside H.P. on account of his/her Occupation.
- iii) A Govt. Employee residing in H.P. for a period of 20 years or more.
- iv) By Birth.

Place:

Date:

Signature of applicant

Executive Magistrate

FORM II

Tehsildar _____

District: _____

SEAL

CERTIFICATE OF SCHEDULED CASTE

No.

Valid From: _____

It is certified that Sh./Ms. _____ Son/Daughter of Sh./Ms. _____ resident of Village
 _____ Tehsil _____ District _____ of Himachal Pradesh state belongs to
 _____ which is recognized as a Scheduled Caste. Sh. / Ms. _____ and his/her family ordinarily
 reside in Village _____ of District _____ of the State of Himachal Pradesh.

Place:

Date:

Executive Magistrate

FORM III

Tehsildar _____
District: _____

SEAL

CERTIFICATE OF SCHEDULED TRIBE

No. _____ Valid From: _____

It is certified that Sh./Ms. _____ Son/Daughter of Sh./Ms. _____ resident of Village _____ Tehsil _____ District _____ of Himachal Pradesh state belongs to _____ which is recognized as a Scheduled Tribe.

Sh./Ms. _____ and his/her family ordinarily reside in Village _____ of District _____ of the State of Himachal Pradesh.

Place: _____

Date: _____ Executive Magistrate

FORM IV

CERTIFICATE OF WARD OF SERVING/ EX-DEFENCE PERSONNEL

Certified that Shri/ Kumari _____ Son/ Daughter of Shri _____ who is Serving/ Ex-Defence Personnel belongs to Village _____ Tehsil _____ District _____ and his rank is/was _____. He was/was not awarded any gallantry awards. The particulars of the Gallantry Award granted to him are as under:

Name of the award _____
Year of Grant _____

Dated: _____

Signature with stamp
(Commanding Officer/Deputy Director Zila Sainik Board)

FORM V

Tehsildar _____
District: _____

SEAL

CERTIFICATE OF OTHER BACKWARD CLASSES

It is certified that Sh./Ms. _____ Son/Daughter of Sh. _____ resident of _____ Post Office _____ Tehsil _____ District _____ belongs to _____ community which is recognized as Other Backward Caste in Himachal Pradesh by Government.

Shri/Ms. _____ and her/his family ordinarily reside in Village _____ P.O. _____ Tehsil _____ District _____ of Himachal Pradesh.

This also to certify that he/she does not belong to the persons/Section (Creamy Layer) mentioned in the schedule.

Date _____

District Magistrate/
Executive Magistrate

NB:

- a) The term 'Ordinarily' used here will have the same meaning as in Section 20 of the Representation of the Peoples Act, 1950.
- b) Where the Certificates are issued by Gazetted Officers of the Union Government or State Governments, they should be in the same form but countersigned by the District Magistrate or Deputy Commissioner (Certificates issued by Gazetted Officers and not attested by District Magistrate/Deputy Commissioner are not sufficient).

FORM VI
CERTIFICATE IN SUPPORT OF
CLAIM OF KASHMIRI MIGRANT

No. _____

Date _____

It is certified that Sh./Ms. _____ Son/Daughter of
Sh./Ms. _____ resident of Village/Town _____ Post Office
_____ Tehsil _____ District _____ is a Kashmiri migrant. He/She is original resident of
Village/Town _____ Tehsil _____ District _____ of Jammu & Kashmir.

Signature _____

Designation _____

(with seal of office)

Authorities competent to issue Kashmiri Migrant Certificate: District Magistrate of the District of origin of the person.

Note : In case, the certificate is found to be false or incorrect, the admission of the candidate will be cancelled and he/she will render himself/herself liable for criminal prosecution.

FORM VII
(CERTIFICATE OF BONAFIDE RESIDENT OF RAJPUR/KHALET GRAM PANCHAYAT)

Certified that Shri/Smt./Kumari _____ Son/Daughter/Spouse of Shri _____
resident of _____ is the legal heir of the resident of Rajpur/Khalet Panchayat,
who has been residing in the said Panchayat area and have proprietary rights in the same Panchayat prior to
July 4, 1966 and still continues, to reside and have proprietary rights in the same Panchayat.

Signature with stamp
S.D.O. (Civil)/
SDM/Tehsildar/Magistrate

Note: The Candidate seeking admission against the seat reserved for the RAJPUR/KHALET Panchayat shall also submit a copy each of 'SHAJRA NASAB' and 'JAMABANDI' from the Patwari concerned to prove that the ancestors of the candidate owned land and held proprietary right in the concerned Panchayat and he /she still enjoys those rights at present.

FORMAT FOR MEDICAL FITNESS CERTIFICATE

(To be obtained from the Medical Officer from any Government Hospital)

Name of Candidate						Age		Sex											
Father's name																			
(To be filled by candidate)																			
L.T.					M.I					Vision									
Height			Weight			Chest			Abdomen		Colour Vision								
											Without glasses								
											With glasses								
History			Operations			Kock's Asthma			Colic			BP			Blood Group				
			Seizures						Piles			Diabetes							
Pulse				Tonsil				DNS				Hernia							
Pallor				L Nodes				CSOM				Hydrocele							
Cardiovascular								CNS											
Respiratory								GIT											
Genitourinary								Others											
Is the candidate Differently Abled										:		Yes/No							
If yes, Type of Disability										:									
Any other finding																			
Final result. (Fit/Unfit) for the admission to degree programme of the CSKHPKV, Palampur																			

Signature of candidate

Signature of Medical Officer/
(With Official stamp and date)

MEDICAL AND PHYSICAL FITNESS STANDARDS

1. **General Requirement:** The candidates should possess good general physique and be free from any infectious or contagious disease. He/she should be free from any physical or mental illness or defect likely to interfere with the training in the University.
2. **Heart and lungs:** No significant abnormality should be present.
3. **Hernia, Hydrocele:** There should be no hernia or hydrocele.
4. **Vision:**
 - a. Normal eye without glasses. Where defective, it must be corrected up to 6/9 in better eye and 6/12 in the other eye.
 - b. There should be no colour blindness for major colours.
5. **Speech:** There should be no major speech defects.
6. **Physical Disability:**
 - a. The medical standards for the candidate (other than B.V.Sc. & A.H. degree) to be considered under physically disabled category are low vision, hearing impairment, locomotor disability or cerebral palsy having at least 40% disability.
 - b. For B.V.Sc. & A.H., a candidate should not suffer disabilities in physical fitness as listed below:
 - i. disability of total body including disability of chest/spine more than 50%.
 - ii. disability of lower limb more than 50%.
 - iii. disability of upper limb.
 - iv. visually disabled candidates and those with hearing disability.
 - v. candidate with progressive diseases like myopathies, etc.
 - vi. disability, which otherwise would interfere in the performance of the duties of a veterinarian.

The candidate claiming for above benefit should submit, at the time of counselling, a certificate by a duly constituted and authorized Medical Board comprising of at least three specialists out of which two should be of the concerned specialty. The last valid disability certificate of the candidate should not be more than six months old from the date of submitting his/her certificate.

Note: *The candidates are well advised to get themselves checked up for any defects and get the same rectified before taking admission to avoid rejection.*

**CHAUDHARY SARWAN KUMAR H.P. KRISHI VISHVAVIDYALAYA
PALAMPUR – 176062 (H.P.) INDIA**

Application Form for Admission of NRI/Children of NRI/Ward of NRI/Foreign National Candidate
(B.V.Sc. & A.H., B.Sc. (Hons.) Agriculture, M.Sc. Ag., M.Sc. (Community Science), M.Sc. and M.V.Sc. programmes)
(Academic Session 2017-18)

IMPORTANT: The candidate must carefully read instructions given at the end of this form and in the Information Brochure & Prospectus before filling the application form. The last date of receipt of application form in the office of the Registrar, CSKHPKV, Palampur (H.P.), India is **15.07.2017**.

FOR OFFICE USE ONLY			
Last Exam passed	Name of Board/ University	Marks/OGPA/ OCPA obtained	%age of marks

Paste latest coloured passport size (35mm x 45mm) photograph duly signed by the candidate

Do not staple

Category under which seeking admission.....
 Documents lacking.....
 Demand Draft No./Transaction No.
 Amount US \$.....
 Certificate/Degree equivalence allowed? Yes/No
 Admission Status.....
 Admission No.
 Academic Assistant....Section Officer.....Asstt. Registrar.....

Detail of Application Fee (To be filled in by the candidate)
Amount _____
Demand Draft No./Transaction No. _____
(whichever applicable)
Date _____ Issuing Bank _____
Branch _____ City _____
Note: 1. Bank draft for US\$ 500 (US\$ 520, if the draft is payable at city other than Palampur) should be drawn in favour of Comptroller, CSK HPKV, Palampur payable at SBI HPAU, Palampur (IFSC:SBIN0003632) FCRA A/C: 34854349548.
2. Write your name at the back of Demand Draft.

1. Full name of the applicant (in capital letters) _____
2. Father's/Guardian's name (in capital letters) _____
3. Mother's name (in capital letters) _____
4. Gender (Male/Female/Third Gender) _____
5. Nationality _____
6. Whether NRI or Foreign National? _____
 If NRI, state the following:
 (a) Country of Immigration _____
 (b) Relationship of applicant with NRI _____
 (In case of children/ward of NRI)

7. Permanent Home Address

8. Correspondence Address

Telephone No. & / or Mobile No. (*In India*)

Fax No. (*In India & Abroad*)

E-mail ID

9. Programme for which applied :

**B.V.Sc. & A.H./ B.Sc.(Hons.) Agriculture/ M.Sc./
M.Sc.(Community Science)/M.Sc. (Ag.)/M.V.Sc.**

B.V.Sc. & A.H.	
B.Sc. (Hons.) Agriculture	
M.Sc./M.Sc.(Community Science)/M.Sc. (Ag.)/ M.V.Sc.	

10. Date of birth

Day (DD)	Month (MM)	Year (YYYY)
-------------	---------------	----------------

11. Place of birth

(a) District/City/Town

(b) State/Province

(c) Country

12. Mother Tongue

13(a). Details of qualifying examination passed:

Examination	10+1 or Equivalent	10+2 or Equivalent	Bachelor's Degree
Name of School /College			
Name of the Board/ University			
Month and year of passing			
Board/University Roll No./Regi. No./Student No.			
Maximum marks/OGPA/OCPA			
Marks/OGPA/OCPA obtained			

Percentage of marks			
Subjects			
Medium of instruction			

13(b). Details of marks obtained in English, Physics, Chemistry & Biology/Mathematics/Agriculture/Biotechnology at 10+1 & 10+2 level (**Applicable for Undergraduate Programmes only**).

Subject	Level	Grade	Equivalent % marks obtained	Supporting Documents
English	10+1			
	10+2			
Chemistry	10+1			
	10+2			
Physics	10+1			
	10+2			
Biology/ Mathematics/ Agriculture /Biotechnology	10+1			
	10+2			

Note:

- i. NRI candidates are such persons who do not reside in India and who are Non-Resident Indians (residing abroad).
- ii. Ward of NRI is one who has no parents and has been taken as ward by other NRI relative. Such ward is considered for admission provided the guardian of ward is declared as guardian by the court as per provision in "The Guardian and Wards Act. 1890".
- iii. Provide conversion formula from OGPA/OCPA to percentage (%).
- iv. Application without supporting documents for conversion will not be considered. Conversion document must be attested by School Principal from where 10+2 exam has been passed.

DECLARATION BY CANDIDATE

1. I _____ son/daughter of _____ hereby certify that the application form has been filled in my own handwriting and according to the given instructions.
2. I hereby affirm that the information given by me in this application form is complete and true to the best of my knowledge and belief and that nothing has been concealed therein. I have made this application with the consent and approval of my parent/guardian. In the event of my being admitted to the college, I undertake to abide by the disciplinary and other rules and regulations of the college and the university.
3. I shall remain in touch with the University for knowing the outcome regarding my admission and shall not hold the university responsible for any postal delay, loss or misplacement of the correspondence made in this regard.
4. If any of the information furnished by me is found to be incorrect, I shall be liable to be prosecuted under the prevalent law besides summarily expelled from CSK H.P. Krishi Vishvavidyalaya, Palampur.

(Signature of Father/Guardian)

(Signature of Candidate)

Place _____

Date _____

INSTRUCTIONS FOR FILLING UP APPLICATION FORM BY NRI/FOREIGN NATIONAL CANDIDATE

1. The candidate must read the Information Brochure & Prospectus carefully and ensure his/her eligibility before filling up the application form.
2. The application form must be filled LEGIBLY IN BLUE/BLACK INK BY THE CANDIDATE IN HIS/HER OWN HANDWRITING and submitted/mailed/posted in time so as to reach the Registrar, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur – 176062, H.P., India through Indian Embassy/Indian High Commission in that country, by the last date and time fixed for the receipt of application. A scanned copy of the filled-in application form along with scanned copies of all necessary documents/certificates with proof of submission/depositing of application fee should also be mailed at e-mail ID: registrar@hillagric.ac.in in advance.
3. Latest passport size photograph (35mm X 45mm) duly signed by the candidate should be pasted in the space provided on the application form. The photograph should be the same in all respects as the candidate wishes to appear in the counselling/interview. If the candidate wishes to appear in counselling/interview with beard, turban, etc., the photograph should also appear so.
4. The application form must be completely filled and no column should be left blank. Write “Not applicable” where no information is required to be given. Incomplete application form is liable to be rejected.
5. Self attested copies of all the certificates from matriculation onwards and other supporting testimonials must be attached with the application form in the first instance. No additional certificate/testimonial shall be entertained subsequently.
6. The application form must be accompanied by a demand draft of the requisite amount (mentioned in application form), otherwise the form will be summarily rejected.
7. It is the responsibility of the candidate to furnish complete and correct information in the Application Form. In case, any relevant information is concealed or any certificate/degree/testimonial is found fake/false at any point of time, the admission of the candidate shall be cancelled forthwith at the cost and risk of the candidate.
8. **INCOMPLETE APPLICATIONS AND THOSE RECEIVED AFTER THE PRESCRIBED DATE WILL NOT BE ENTERTAINED UNDER ANY CIRCUMSTANCES. NO CORRESPONDENCE/ENQUIRY FROM SUCH CANDIDATES SHALL BE ENTERTAINED.**

CHECK LIST OF CERTIFICATES, ETC. TO BE SUBMITTED WITH THE APPLICATION BY NRIs/FOREIGN NATIONALS

1. Photocopy of Passport (duly self attested).
2. Photocopy of Parent's Passport.
3. Certificate in evidence of being NRI.
4. *In case of Ward of NRI, declaration as guardian by the court as per provision in "The Guardian and Wards Act. 1890".*
5. Affidavit by the NRI candidate's parent/guardian on prescribed proforma (Annexure X).
6. Self attested photocopy of certificate in evidence of date of birth.
7. Self attested photocopies of degrees, diplomas and certificates for the examinations passed including qualifying examination.
8. Self attested photocopies of detailed marks certificates of all the examinations passed.
9. Self attested photocopy of character certificate from the school/college/institution last attended.
10. Two copies of the recent passport size photograph of the candidate.
11. Self attested supporting documents for conversion of OGPA/OCPA.
12. Self attested copy of the syllabi of courses studied at 10+1 & 10+2 standard along with website address (only for admission to an Undergraduate Programme).

Note: Original degrees, diplomas, certificates, etc. attested copies of which have been enclosed with the application form shall have to be produced at the time of Registration; otherwise the claim of the candidate for the seat will stand forfeited.

AFFIDAVIT BY NRI CANDIDATE’S PARENT/GUARDIAN

I, Sh./Smt. _____ S/O, D/O, W/O_____ and parent of Mr./Ms._____ who is applying for admission under NRI Category in the _____ (Write the name of the programme) programme at Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur do hereby solemnly affirm and declare as under:-

- 1. That my State of origin in India is _____, where I am having ancestral and inheritable property. My ancestral address in India is _____.
- 2. That, I migrated to _____ (country) on _____ as a resident of _____ (country). My Permanent Alien Registration Card/ Non-residential Card No. is _____ (If applicable).
- 3. That, my child/ward is an NRI.
- 4. That, I undertake to make full payment of the prescribed tuition fee and other charges for the entire duration of the programme in the manner as may be fixed by the University.
- 5. That, if any of the information furnished is found to be incorrect at any stage, the admission of my child/ward be cancelled and fee deposited by me be forfeited and proceedings, as permissible under the law of the land, be initiated against me.

DEPONENT

Verification

I solemnly declare that the above contents of para 1 to 5 of mine are true and correct to the best of my knowledge and belief and nothing has been concealed therein.

DEPONENT

Date _____

Place _____

Sworn to and appeared before me at _____ (place of the country) on this day _____ (date).

Signature and seal (Notary Public/Magistrate Class I)

Note: Strike off whichever is not applicable.

**COUNSELLING PROFORMA FOR B.V.Sc. & A.H., B.Sc.(Hons.) AGRICULTURE and MASTER'S PROGRAMMES
CSKHPKV, PALAMPUR**

Roll No. of the candidate _____

Entrance test score _____

Programme applied for: _____

**{B.Sc.(Hons.) Agriculture/B.V.Sc. & A.H./B.Sc.(Hons.) Agriculture & B.V.Sc. & A.H. (BOTH)/M.Sc./M.Sc. Ag./
M.Sc.(Community Science)/ M.V.Sc.}**

S. No.	Particulars		
		English (block letters)	(Hindi)
1.	Name of the candidate		
2.	Father's name		
3.	Mother's name		
4.	Gender (Male/Female/Third Gender)		
5.	Date of birth		
6.	Address for correspondence		
7.	Permanent address		
8.	Aadhar Card No.		
9.	Phone No. Mobile No. E-mail ID		
10.	State of Domicile		
11.	Category: Gen./SC/ST/OBC		
12.	Other Sub-category (ies)/claim(s)		
13.	Name & Year of passing qualifying examination		
14.	Name of Board/University of qualifying Examination		
15.	a. Details of subjects with marks obtained in qualifying examination (10+2 or equivalent) <i>[for those who have applied for Undergraduate Programmes (i.e. B.Sc.(Hons.) Agri. or B.V.Sc. & A.H. or both)]</i>		
	Qualifying Examination		
	Subject	Maximum Marks	Marks obtained
	English		
	Physics		
	Chemistry		
	Biology/Biotechnology/Mathematics/ Agriculture		
	Total		

	b. Percentage of marks in qualifying examination <i>[for those who have applied for Masters' Programmes (i.e. M.Sc./ M.Sc. Ag./M.Sc.(Community Science)/ M.V.Sc.)]</i>	
16.	Do you want to stay in Hostel?	YES/NO

Attached Documents:

i. Marks sheet of qualifying examination	Yes/No
ii. Certificate of High School or equivalent examination as a proof of age	Yes/No
iii. Character Certificate issued by the Headmaster/Principal of the Institution last attended	Yes/No
iv. Certificate of being a Bonafide Himachali, where applicable. (Form I)	Yes/No
v. SC/ST/OBC certificate (Form II/Form III/Form V)	Yes/No
vi. Certificate of being son/daughter/spouse of the serving/ex-defence personnel (Form IV)	Yes/No
vii. Certificate of resident of Rajpur/Khalet Gram Panchayat (Form VII) along with a copy each of 'SHAJRA NASAB and 'JAMABANDI'	Yes/No
viii. Certificate of being a ward of freedom fighter, where applicable	Yes/No
ix. Evidence of claim of Kashmiri Migrant	Yes/No
x. Evidence of claim of weightage for distinction in sports/NCC/NSS/other co-curricular activities	Yes/No
xi. Certificate of being Differently Abled	Yes/No
xii. Proof for gap in studies	Yes/No
xiii. PDC/Proof of completion of qualifying degree duly countersigned by the Registrar	Yes/No

(Signature of Candidate)

Documents In order / Not in order

(Checking Officer)

ANSWER SHEET

ROLL NUMBER

0	1	2	3	4	5
6	7	8	9		

QUESTION BOOKLET NUMBER

0	1	2	3	4	5
6	7	8	9		

NAME OF CANDIDATE

.....

.....

CANDIDATE'S SIGNATURE

.....

INVIGILATOR'S SIGNATURE

.....



ANSWER SHEET NUMBER

INSTRUCTIONS FOR MARKING ANSWERS

- Mark your answers completely with BLUE/BLACK Ball Point Pen.
- Mark only one choice for each question as indicated below.

Correct Method : A B C D

Wrong Methods : A B C D

COORDINATOR'S SEAL

ANSWER

1	A	B	C	D	46	A	B	C	D	91	A	B	C	D	136	A	B	C	D
2	A	B	C	D	47	A	B	C	D	92	A	B	C	D	137	A	B	C	D
3	A	B	C	D	48	A	B	C	D	93	A	B	C	D	138	A	B	C	D
4	A	B	C	D	49	A	B	C	D	94	A	B	C	D	139	A	B	C	D
5	A	B	C	D	50	A	B	C	D	95	A	B	C	D	140	A	B	C	D
6	A	B	C	D	51	A	B	C	D	96	A	B	C	D	141	A	B	C	D
7	A	B	C	D	52	A	B	C	D	97	A	B	C	D	142	A	B	C	D
8	A	B	C	D	53	A	B	C	D	98	A	B	C	D	143	A	B	C	D
9	A	B	C	D	54	A	B	C	D	99	A	B	C	D	144	A	B	C	D
10	A	B	C	D	55	A	B	C	D	100	A	B	C	D	145	A	B	C	D
11	A	B	C	D	56	A	B	C	D	101	A	B	C	D	146	A	B	C	D
12	A	B	C	D	57	A	B	C	D	102	A	B	C	D	147	A	B	C	D
13	A	B	C	D	58	A	B	C	D	103	A	B	C	D	148	A	B	C	D
14	A	B	C	D	59	A	B	C	D	104	A	B	C	D	149	A	B	C	D
15	A	B	C	D	60	A	B	C	D	105	A	B	C	D	150	A	B	C	D
16	A	B	C	D	61	A	B	C	D	106	A	B	C	D	151	A	B	C	D
17	A	B	C	D	62	A	B	C	D	107	A	B	C	D	152	A	B	C	D
18	A	B	C	D	63	A	B	C	D	108	A	B	C	D	153	A	B	C	D
19	A	B	C	D	64	A	B	C	D	109	A	B	C	D	154	A	B	C	D
20	A	B	C	D	65	A	B	C	D	110	A	B	C	D	155	A	B	C	D
21	A	B	C	D	66	A	B	C	D	111	A	B	C	D	156	A	B	C	D
22	A	B	C	D	67	A	B	C	D	112	A	B	C	D	157	A	B	C	D
23	A	B	C	D	68	A	B	C	D	113	A	B	C	D	158	A	B	C	D
24	A	B	C	D	69	A	B	C	D	114	A	B	C	D	159	A	B	C	D
25	A	B	C	D	70	A	B	C	D	115	A	B	C	D	160	A	B	C	D
26	A	B	C	D	71	A	B	C	D	116	A	B	C	D	161	A	B	C	D
27	A	B	C	D	72	A	B	C	D	117	A	B	C	D	162	A	B	C	D
28	A	B	C	D	73	A	B	C	D	118	A	B	C	D	163	A	B	C	D
29	A	B	C	D	74	A	B	C	D	119	A	B	C	D	164	A	B	C	D
30	A	B	C	D	75	A	B	C	D	120	A	B	C	D	165	A	B	C	D
31	A	B	C	D	76	A	B	C	D	121	A	B	C	D	166	A	B	C	D
32	A	B	C	D	77	A	B	C	D	122	A	B	C	D	167	A	B	C	D
33	A	B	C	D	78	A	B	C	D	123	A	B	C	D	168	A	B	C	D
34	A	B	C	D	79	A	B	C	D	124	A	B	C	D	169	A	B	C	D
35	A	B	C	D	80	A	B	C	D	125	A	B	C	D	170	A	B	C	D
36	A	B	C	D	81	A	B	C	D	126	A	B	C	D	171	A	B	C	D
37	A	B	C	D	82	A	B	C	D	127	A	B	C	D	172	A	B	C	D
38	A	B	C	D	83	A	B	C	D	128	A	B	C	D	173	A	B	C	D
39	A	B	C	D	84	A	B	C	D	129	A	B	C	D	174	A	B	C	D
40	A	B	C	D	85	A	B	C	D	130	A	B	C	D	175	A	B	C	D
41	A	B	C	D	86	A	B	C	D	131	A	B	C	D	176	A	B	C	D
42	A	B	C	D	87	A	B	C	D	132	A	B	C	D	177	A	B	C	D
43	A	B	C	D	88	A	B	C	D	133	A	B	C	D	178	A	B	C	D
44	A	B	C	D	89	A	B	C	D	134	A	B	C	D	179	A	B	C	D
45	A	B	C	D	90	A	B	C	D	135	A	B	C	D	180	A	B	C	D

For further enquiries, please contact:

Section Officer (Academic),

CSKHPKV, Palampur (H.P.) – 176062

Tel.: +91-1894-230394/283119/283120 (O) Mb. 078072-14518 (M)

Fax : +91-1894-230511

Email: contactpetckshpkv@hillagric.ac.in/contactpetckshpkv@gmail.com