

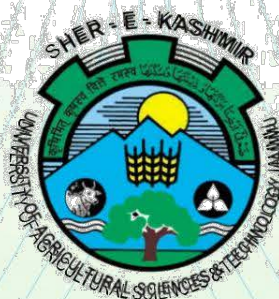
INFORMATION BROCHURE

SKUAST-Jammu

CET - 2019

For

**Under Graduate
&
Post Graduate Programmes
Admission**



**Sher-e-Kashmir University of Agricultural
Sciences & Technology of Jammu**

IMPORTANT DATES FOR SKUAST-J CET-2019	
Commencement of submission of online application forms	01-05-2019 from 10:00 AM.
Last date for submission of online application forms	31-05-2019 up to 5:00 PM.
Last date for submission of online application forms with late fee	03-06-2019 up to 5:00 PM.
Date of Common Entrance Test (CET) <ul style="list-style-type: none"> • Undergraduate programme • Masters programmes 	23-06-2019 (Sunday) 22-06-2019 (Saturday)
Test Centre	Jammu
Date of download of Admit card <ul style="list-style-type: none"> • Under graduate Programme • Masters Programme 	14-06-2019 14-06-2019
Test Centre	Jammu

Counselling:

Qualified candidates, as per merit, shall be called for counselling on a specified date and time for consideration of admission to various Undergraduate and Master's programme. The counselling will continue till the last seat in each programme is filled-up. Merit list will be uploaded on the university website (www.skuast.org). **The candidates are advised to see regularly the website of the University for counselling dates.** No separate letter will be sent to the candidates. Counselling schedule will be notified in the newspapers.

Start of Counselling (B.Sc.(Hons.)Agri/ B.V.Sc.&A.H./ B.Tech. Biotechnology	09.07.2019
Postgraduate Programmes	23.07.2019

Application Fee for CET 2019 without late fee	Rs. 1800/-
Application Fee for CET 2019 with late fee	Rs. 2800/-

Venue for Counselling: Conference Hall, SKUAST-Jammu, Chatha.

Counselling shall start at 10.30 am sharp. The candidates shall be called for counselling and preliminary verification of certificates as per the rank obtained in CET. The cut off rank, category wise for each counselling shall be notified separately and placed on University website from time to time till last counselling. The candidate is required to record his/her presence for counselling by signing on the designated register at the counselling hall. The aspirants shall be called for the counselling with descending rank one after the other and if a candidate called for counselling does not present him or her-self before the committee, his or her claim for any seat shall get forfeited. In case the candidate reports after his name is called for counselling but within stipulated time on the day of counselling the seat offered to that candidate shall be out of the unallocated seat available at the point of time when he/she reports before committee. A candidate reporting for counselling after 5.00 pm of the stipulated date shall not be allowed to mark their presence and shall not be entertained for counselling in any case. **Accordingly, candidates are advised to meet the deadline of cut off time on the day of counselling. The candidates who are called for counselling must pay online counselling fee of Rs 1000/- before appearing on the scheduled date of counselling.** The details for depositing online counselling fee shall be available on the University website www.skuast.org.

Disclaimer

- The information contained in this brochure is of general nature for the candidates who aspire for admission in various programmes offered by the University. It is neither an exhaustive nor a legal document. The statements and all other information presented herein the brochure are believed to be correct at the time of publication. However, the University reserves the right to make additions or alterations in the regulations, conditions governing admissions, the code of conduct of students, requirements for the degree or the diploma, fees and any other information or statement/rule at any time without notice.
- University may delete any programme of studies at any time without notice or reduce or enhance the number of seats. No responsibility shall be accepted by the University for any hardship encountered or expenses incurred by the students or any other person for 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 honours and conduct in the premises of the University and alike.
- The students should also note that the provisions of the Act, Statutes, Academic Regulations and other legal/administrative notifications, orders, instructions and guidelines etc can be changed by the competent authorities at any time without assigning any reason or prior notice.
- Though every effort and care is taken to stick and follow the instructions and schedule of dates given hereunder, 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.
- Fees and other charges once paid at the time of admission shall not be refunded except for the refundable component (security deposits).
- Admission to the University entails acceptance of all provisions given in the University Act, Statutes, Regulations and admission policy and changes that are made from time to time there in.

Jurisdiction

Jurisdiction for any disputes is at Jammu city

Prelude

The Sher-e –Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST – Jammu) has been established by the Government of Jammu and Kashmir on September 20, 1999 by promulgated vide SRO No 408 dated 20-09-1999 an amendment in the Sher-e –Kashmir university of Agricultural Sciences and Technology of Jammu and Kashmir Act of 1982 and

The prime mandate to the university is to produce competent human resource that can sustain and improvise the phenomenal growth of agriculture and allied sectors with an eye on maintenance of biodiversity and addressing the environmental concerns. Accordingly the faculty, students and scholars of the university are manning the frontier of life sciences, environmental sciences, food and energy system along with community and economic development. The university is also mandated to develop new, refine the existing and disseminate appropriate agricultural technologies to the stakeholders in the state in general and Jammu Division in particular. It also steers innovate, location specific and problem solving research in agriculture and its allied sectors.

The University ranks in state agricultural universities of India and is having excellent facilities in terms of teaching, research, sports and other extracurricular activities. The university strives to provide congenial learning environment at graduate as well as at postgraduate levels to churn out the competent human resource in the realm of Agriculture Sciences, Veterinary Sciences, Animal Husbandry and Biotechnology, Food Science, Sericulture, Agricultural Engineering, Microbiology, MBA (Agribusiness Management), Forestry and Basic Sciences. **Almost all the programmes of study offered by the University at Graduate and Post Graduate levels are accredited by Accreditation Board of Indian Council of Agricultural Research, New Delhi.** The University is having well qualified and trained faculty well known nationally /internationally and the quality education being imparted to the students by the university is fashioning them to get selected in the most coveted services like scientists in the universities and research organizations of repute both in and out of the state; Indian Administrative Services, Indian Forest Services, Kashmir Administrative Services, Public and Private Banking and others sectors besides the primary sectors like Agriculture, Horticulture, Sheep & Animal husbandry.

A. ABOUT UNIVERSITY

Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu is a multi-campus University with its headquarter located at Chatha, Jammu at a distance of 6 km from Jammu Air Port, 8 km from Jammu- Pathankot NH-1A, 12 km from the Jammu Railway Station and 14 km from the General Bus Stand.

The University has extensive land resources. The main campus at Chatha is spread over 578 acres. The Faculty of Agriculture, Faculty of Basic Sciences and School of Biotechnology are located at this campus. Faculty of Veterinary Sciences & Animal Husbandry located at R S Pura has an extent of 84 acres. The total land possession with the university (including Research Stations/Sub-Stations and KVKs) is 1139.12 acres. There are six Research Stations/ Sub-Stations, two Advanced Research Centres for Horticulture and Rain fed Agriculture and seven KVKs in the University and are located in different agro-climatic zones of Jammu region for catering to location-specific research and extension needs of the farming community. University pursues high standard of location specific and problem-solving research through research projects funded by various central and state agencies. At the faculties level the focal emphasis is on producing quality human resource by providing congenial learning atmosphere in the campus. The inception of high-tech infrastructure involving computer-based facilities, Internet connectivity and modern administrative dispensation are vital characteristics of this University.

The University has high quality infrastructure facilities in terms of buildings, laboratories, lecture rooms, instructional and research farms, modern instruments/equipment, farm machinery, and transport and library. It has distinguished and qualified faculty positioned at all the campuses and regional research stations. The faculty members and the post-graduate students of the University have won numerous coveted national and international recognitions in the form of awards, honours and fellowships.

B. ELIGIBILITY REQUIREMENTS

- Only permanent residents of the Jammu and Kashmir State as defined in Section 6 of the Constitution of J&K are eligible for seeking admission to all the undergraduate and postgraduate programmes.
- For admission to undergraduate programme in Biotechnology, candidates from outside states can also apply.
- The candidates hailing from states other than Jammu and Kashmir can seek admission under Non-Resident Indian (NRI)/ NRI sponsored quota for B. V.Sc. & A.H. and B. Sc. (Hons.) Agriculture, and against Self Financing seats for Postgraduate courses kept under All India basis category only.
- Candidates will have to ensure that they fulfil the eligibility criteria and qualification(s) prescribed for admission to the relevant programme by the University which is specified below:

(i) For Undergraduate Programmes

- Candidates must have passed Higher Secondary Part II (12th or 10+2) or an equivalent examination from recognized board/examining body with PCB/PCM/PCBM/Agriculture (with Science subjects), besides English and having 50% marks in aggregate for open/NRI/NRI-sponsored category, and 40% for reserved categories for admission to B.Sc. (Hons.) Agriculture (P,C,B and M are Physics, Chemistry, Biology and Mathematics, respectively)

- Candidates must have passed Higher Secondary Part II (12th or 10+2) or an equivalent examination from recognized board/examining body with PCB/PCBM subjects, besides English and having 50% marks in aggregate for open/NRI/NRI-sponsored category and 40% for reserved categories for admission to B.V.Sc.& A. H.(P, C, B and M are Physics, Chemistry, Biology and Mathematics, respectively)
- Candidates must have passed Higher Secondary Part II (12th or 10+2) or an equivalent examination from recognized board/examining body with PCB/ PCM /PCBM subjects, besides English and having 50% marks in aggregate for admission to B.Tech.(Biotechnology) against Self-Financing Seats.
- Candidates must be 17 years old on or before 31.12.2019.
- Candidates who have appeared in Higher Secondary Part II (12th or 10+2) are also eligible to apply provided they produce their Higher Secondary Part II (12th or 10+2) mark sheet issued by competent examining body at the time of counselling and fulfil all the above prescribed requirements to be eligible for admission.

Note: The NRI candidates shall submit copy of their qualifying examination i.e. 10+2 qualification certificate/marks sheet duly verified and certified by Indian Embassy/High Commission in the country of their residence, stating that such examination is equivalent to university prescribed qualifying examination of Indian Boards/Universities.

(ii) For Postgraduate Programmes

- Candidates not below 19 years of age, as on 31-12-2019, are eligible to appear in the examination. No relaxation is admissible regarding the minimum age limit.
- The candidate must have passed Bachelor degree examination securing Grade point average (OGPA) at least:
 - **General category :**
 - a) *for Agriculture, Agricultural Engineering and Veterinary streams:* 6.00/10.00 or equivalent percentage of marks at Bachelor's degree.
 - *for Basic sciences stream :* 5.50/10.00 on ten point scale/ or at least 55% marks at Bachelor's degree.
- **Reserved Categories:** 5.50/10.00 on ten point scale/ or at least 55% marks at Bachelor's degree.
- Candidate must have passed or due to appear at the final examination and likely to get awarded the degree on or before the counselling date as mentioned in this brochure.

The subject wise eligibility requirements are given below:

S.No	M.Sc. Agriculture and Allied Sciences	Feeder Streams
1.	Agricultural Economics	B.Sc. Agriculture/ B.Sc. Horticulture /B.Sc. Forestry
2.	Agricultural Extension & Communication	B.Sc. Agriculture /B.Sc. Horticulture/ B.Sc. Forestry
3.	Agronomy	B.Sc. Agriculture
4.	Biotechnology	Bachelor's degree in Biotechnology/ Agriculture/ Veterinary Sciences/Life Sciences
5.	Entomology	B.Sc. Agriculture/ B.Sc. Horticulture/ B.Sc. Life Sciences with Zoology
6.	Horticulture (Floriculture & Landscaping)	B.Sc. Agriculture/ B.Sc. Horticulture
7.	Food Science & Technology	B.Sc. Agriculture/ B.Sc. Horticulture
8.	Forestry	B.Sc. Forestry/B.Sc. Agriculture/B.Sc. Horticulture
9.	Horticulture (Fruit Science)	B.Sc. Agriculture/ B.Sc. Horticulture
10.	Genetics & Plant Breeding	B.Sc. Agriculture /B.Sc. Life Sciences with Botany
11.	Plant Pathology	B.Sc. Agriculture/ B.Sc. Horticulture/ B.Sc. Life

		Sciences with Botany
12.	Sericulture	B.Sc. Sericulture/B.Sc. Agriculture/ B.Sc. Bio Sciences
13.	Soil Science & Agriculture Chemistry	B.Sc. Agriculture/B.Sc. Horticulture/B.Sc. Forestry
14.	Horticulture (Vegetable Sciences)	B.Sc. Agriculture/ B.Sc. Horticulture

M.Tech. (Agricultural Engineering)

1.	Soil & Water Engineering	B. Tech. Agricultural Engineering
2.	Farm Machinery & Power Engineering	B. Tech. Agricultural Engineering

M.Sc. Basic Sciences

1.	Biochemistry	B.Sc. Agriculture/ B.Sc. Horticulture/ B.Sc. Forestry/ B.Sc. Bio-Sciences / Life Sciences with Chemistry/ Biochemistry
2.	Microbiology	Bachelors' degree in Agriculture/Life Sciences/ Biotechnology/Microbiology
3.	Statistics	B.Sc. Agriculture/ B.V.Sc. & A.H/B.Sc. Forestry/ B.Sc. Horticulture/B.Sc. (Stat/Math)
4.	Plant Physiology	Bachelors' degree in Agriculture/ Horticulture/ Forestry/ Bio-sciences with Plant Physiology/ Botany

S.No	M.V.Sc.	Eligibility Criteria
1	Veterinary Medicine	B.V.Sc. & A.H.
2	Veterinary Surgery & Radiology	
3	Veterinary Public Health & Epidemiology	
4	Veterinary Pharmacology & Toxicology	
5	Animal Genetics and Breeding	
6	Veterinary and Animal Husbandry Extension Education	
7	Veterinary Biochemistry	
8	Livestock Products Technology	
9	Veterinary Microbiology	
10	Animal Nutrition	
11	Veterinary Parasitology	
12	Veterinary Pathology	
13	Veterinary Anatomy	
14	Veterinary Physiology	
15	Veterinary Gynaecology& Obstetrics	
16	Livestock Production Management	

NOTE: Only those candidates who have graduated from recognized institutions/ Universities with recognised degrees are eligible to apply.

Admission guidelines for SKUAST-J in-service candidates and in-service State Govt. Nominee:

- For admission of SKUAST-J In-Service Employees’ and In-service state Govt. Nominee, only those applications with the prior permission from the employer shall be entertained. All Such candidates have to appear in SKUAST-J CET-2019. The admit cards to such candidates shall be issued only after the submission of the “permission letter of the employer” to the Examination Cell by the candidate by or before 10.06.2019.
- The admission of the In-service State Government Nominee shall also be made on the basis of **SKUAST-CET 2019**.

C. Distribution of seats for academic session 2019-20.

(i) Programme : B.Sc. (Hons.) Agriculture

The admission to the seats under the ICAR quota will be made on the basis of list provided by the concerned organization.

Number of seats to be filled through Entrance Test:

- (a) Free (Normal Seats):
- | | |
|-----------------------|----|
| 1. Open Merit: | 30 |
| 2. Reserved Category: | 30 |
- (b) Self-Financing Seats:
- | | |
|---------------------------------|----|
| 1. State Domicile: | 21 |
| 2. NRI/NRI Sponsored: | 14 |
| 3. Wards of SKUAST-J Employees: | 03 |
- (c) State In-service Govt. Nominee: 04
- (d) ICAR Quota: 18

(ii) Programme: B.V. Sc. & A.H

The admission to the seats under the VCI quota will be made on the basis of list provided by the concerned organization.

Number of seats to be filled through Entrance Test:

- (a) Free Seats:
- | | |
|-----------------------|----|
| 1. Open Merit: | 17 |
| 2. Reserved Category: | 17 |
- (b) Self Financing Seats:
- | | |
|------------------------------------|---|
| 1. State Domicile: | 12 |
| 2. NRI/NRI Sponsored: | 17 (07+10 VCI) |
| 3. Wards of SKUAST-J Employees: | 03 |
| 4. State In-service Govt. Nominee: | 04 (likely to be filled through NRI/NRI/ Self-financing seats if there is no nomination from State Govt). |

Note:

- **Seats falling vacant under any category shall be filled based on merit of CET through NRI/NRI sponsored category.**
- **Self-financing seats have to provide additional fee as per category & course that shall be over and above normal fee**

D. Matrix of open merit and reserved category seats (Normal Fee Seats):

(a) B.Sc. (Hons.) Agriculture

Category	Codes	No. of seats
Open Merit (OM)	01	30
Scheduled Caste (SC)	02	05
Schedule Tribe Gujjar and Bakerwal (STGB)	03	04
Schedule Tribe Leh District (STL)	04	01
Schedule Tribe Kargil District (STK)	05	01
Other Schedule Tribe (STO)	06	01
Weak and under privileged classes (OSC)	07	01

Resident of Backward Area (RBA)	08	12
Resident of area adjoining Actual Line of Control (ALC)	09	02
Candidates possessing outstanding proficiency in sports (SP) having represented at the State or National level events (with documentary proof)	10	01
Children of State Police Personnel and para-military forces (JKPM)	11	01
Children of Defence Personnel-Permanent Residents of State only (CDP)	12	01

(b) B.V. Sc. & A.H.

Category	Codes	No. of seats	
Open Merit (OM)	01		17
Schedule Castes (SC)	02		03
Schedule Tribe Gujjar and Bakerwal (STGB)	03		02
Schedule Tribe Leh District (STL)	04	* 02 on rotation	01
Schedule Tribe Kargil District (STK)	05		Nil
Other Schedule Tribe (STO)	06		01
Weak and under privileged classes (OSC)	07		01
Resident of Backward Area (RBA)	08		06
Resident of area adjoining Actual Line of Control (ALC)	09		01
Candidates possessing outstanding proficiency in sports (SP) having represented at the State or National level events (with documentary proof)	10		01
Children of State Police Personnel and para-military forces (JKPM)	11	* 01 on rotation	Nil
Children of Defence Personnel - Permanent Resident of State Only (CDP)	12		01
* For the Academic year 2019-20, there would be no seat for STK & JKPM Categories			

E. SCHOOL OF BIOTECHNOLOGY

(Self-financing Programme exclusively)

Programme	Intake Capacity
B. Tech. Biotechnology	50 (to be filled on All India basis)

Note: There is no reservation in any category for B. Tech. Biotechnology as the University is running the programme in self-finance mode.

F. Seat Matrix for PG Programmes

(a) No. of seats available for PG Programme in Agriculture & allied sciences 2019-20

S.No	Disciplines	Total Seats	Free Seats (Normal Fee) (State Domicile)		Self Financing Seats*		ICAR Seats	Govt. Nominee
			OM	Reserved	State Domicile	All India Basis		
1.	Agronomy	07	01	0 1 RBA 01 ST	01	01	01	01
2.	Agricultural Economics	06	02	Nil	01	01	01	01
3.	Agricultural Extension & Communication	07	03	Nil	01	01	01	01
4.	Entomology	11	03	Nil	01	01	01	05
5.	Floriculture & Landscaping	03	Nil	0 1 RBA	Nil	Nil	01	01
6.	Food Science & Technology	07	02	Nil	01	01	01	02
7.	Forestry	04	02	Nil	Nil	01	01	Nil
8.	Fruit Science	07	02	Nil	01	01	01	02
9.	Genetics & Plant Breeding	07	01	01 RBA 01 SC	01	01	01	01
10.	Plant Pathology	11	02	01 ST	01	01	01	05
11.	Sericulture	07	02	01 ALC	01	01	01	01
12.	Soil Science & Agriculture Chemistry	07	02	01 RBA	01	01	01	01
13.	Vegetable Sciences	07	03	Nil	01	01	01	01
14.	Biotechnology	04*	Nil	Nil	Nil	04	Nil	Nil
	Total	95	25	08	11	16	13	22

*There is no reservation in any category for M.Sc, Biotechnology as the University is running the programme in self-finance mode.

(b) No. of seats available for M. Tech. Programme in Agricultural Engineering 2019 - 20

S.No	Disciplines	Total Seats	Free Seats (Normal Fee) (State Domicile)		Self Financing Seats*		ICAR Seats	Govt. Nominee
			OM	Reserved	State Domicile	All India Basis		
1.	Farm Machinery & Power Engineering.	04	02	Nil	01	Nil	01	Nil
2.	Soil & Water Engineering	04	02	Nil	01	Nil	01	Nil
	Total	08	04	Nil	02	Nil	02	Nil

(c) No. of seats available for PG Programme in Basic Sciences 2019-20

S.No.	Disciplines	Total seats	Free Seats (State Domicile)		Self financing Seats*		ICAR seats
			OM	Reserved	State domicile	All India Basis	
1	Biochemistry	03	02	Nil	Nil	Nil	01
2	Plant Physiology	03	01	01-RBA	Nil	Nil	01
3	Microbiology*	05	Nil	Nil	04	Nil	01 (SF)
4	Statistics	02	01	01-CDP	Nil	Nil	Nil
	Total	13	04	02	04	Nil	03

*There is no reservation in any category for M.Sc. Microbiology as the University is running the programme in self-finance mode.

(d) No. of seats available for PG Programme in Veterinary Sciences 2019-20

S.No	Discipline	Total seats	Free Seats (State Domicile)		Self Financing Seats*		ICAR seats	Govt. Nominee
			OM	Reserved	State Domicile	All India Basis		
1.	Animal Genetics and Breeding	04	02	01 RBA	Nil	Nil	01	Nil
2.	Animal Nutrition	05	01	01-ST 01 CDP	01	00	01	Nil
3.	Livestock Production Management	06	03	Nil	01	01	01	Nil
4.	Livestock Products Technology	03	02	Nil	Nil	Nil	01	Nil
5.	Veterinary Anatomy	03	01	01-RBA 01-SC	Nil	Nil	Nil	Nil
6.	Veterinary and Animal Husbandry Extension Education	03	02	Nil	Nil	Nil	01	Nil
7.	Veterinary Biochemistry	03	02	Nil	Nil	Nil	01	Nil
8.	Veterinary Gynaecology & Obstetrics	03	02	Nil	Nil	Nil	01	Nil
9.	Veterinary Medicine	07	02	01-RBA	01	01	01	01
10.	Veterinary Microbiology	03	01	01 ST	Nil	Nil	01	Nil
11.	Veterinary Parasitology	04	03	Nil	Nil	Nil	01	Nil
12.	Veterinary Pathology	03	02	Nil	Nil	Nil	01	Nil
13.	Veterinary Pharmacology & Toxicology	03	02	Nil	Nil	Nil	01	
14.	Veterinary Physiology	03	01	01-RBA	01	Nil	Nil	Nil
15.	Veterinary Public Health & Epidemiology	06	03	Nil	01	01	01	Nil
16.	Veterinary Surgery & Radiology	06	03	Nil	01	01	01	Nil
	Total	65	32	08	06	04	14	01

Note: Seats falling vacant under any category shall be filled based on merit of CET under self-financing category.

*Self-financing seats have to provide additional fee as per category & course that shall be over and above normal fee.

G. AUTHORITIES COMPETENT FOR ISSUING RESERVED CATEGORY CERTIFICATES

S.No.	Category	Authorized Officers to issue certificates
1.	Residents of Backward Area (RBA)	Revenue Officer not below the rank of Tehsildar
2.	Scheduled Castes (SC)	Revenue Officer not below the rank of Tehsildar
3.	Scheduled Tribe Gujjar & Backwal (STGB)	Revenue Officer not below the rank of Tehsildar
4.	Residents of Area Adjoining Actual Line of Control (ALC)	Revenue Officer not below the rank of Tehsildar
5.	Children of Defence Personnel (Permanent residents of the state (CDP))	Commanding Officer of the unit not below the rank of DIG
6.	Scheduled Tribe Leh District (STL)	Revenue Officer not below the rank of Tehsildar
7.	Scheduled Tribe Kargil District (STK)	Revenue Officer not below the rank of Tehsildar
8.	Weak and under Privileged Classes (OSC)	Revenue Officer not below the rank of Tehsildar
9.	Candidates possessing outstanding proficiency in sports (SP)	Secretary, J&K Sports Council
10.	Other Scheduled Tribes (STO)	Revenue Officer not below the rank of Tehsildar
11.	Children of State Police Personnel and Para-military Forces (JKPM)	DIG concerned

H. GENERAL INFORMATION

- i. The candidates seeking admission to SKUAST-J through common entrance test are advised to:
 - go through this information brochure carefully and acquaint themselves with all the requirements, rules and regulations
 - satisfy themselves about the eligibility criteria prescribed for appearing in the entrance examination.
 - adhere strictly to the last date of submission of application form .
 - Write complete address with Postal Index No, Telephone No., Mobile No, e-mail address, in the application form.
- ii. Since University is neither an appellate authority nor an investigating agency, the complaints against credibility of certificates, including those of reserved categories, will not be entertained.
- iii. No representation will be entertained for rejected forms and forms received after the prescribed cut-off date of receipt of the forms.
- iv. The candidates fulfilling the eligibility criteria will have to appear in the SKUAST-J Common Entrance Test.
- v. Permission of candidates to appear in '**SKUAST-J Common Entrance Test**' shall be provisional and subject to fulfilment of all prescribed eligibility, requirements for admission to course(s) applied for on the date of first counselling.
- vi. Syllabus for the entrance examination is appended in the Information Brochure along with sample questions.
- vii. **Ragging is banned in the University and any culprit shall be dealt and punished as per standing rules of the University.**
- viii. Some of the records shall be destroyed as under:
 - a. The unused question booklets and OMR answer sheets shall be destroyed after three months of the declaration of the result.
 - b. The used answer sheets shall be destroyed after one year of the declaration of the results.
 - c. The counselling forms on which the candidates have indicated their choice at the time of counselling for admission to a particular course will be destroyed after one year.

I. INSTRUCTIONS

(i) Instruction for photographs

Candidates must ensure that:

- latest coloured photograph of passport size required to be uploaded must not have been taken before 31-03-2019 with a placard-indicating name of candidate (as in application form) and date of taking photograph.
- the name of the candidate and date of taking of the photograph must be clear and legible in the photograph.

(ii) INSTRUCTIONS/ PROCEDURE FOR FILLING UP ONLINE APPLICATION FORM

Candidates are advised to read carefully the following instructions before they fill in the admission form:-

1. Candidates have to log on to www.skuast.org to apply on line, and click the link [SKUAST-J Common Entrance Test \(CET\)-2019](#).
2. **The candidates must, in their own interest, download the Information Brochure and understand eligibility criteria and other requirements before filling the Application Form.**
3. Application Form will be accepted **Online ONLY** through University website www.skuast.org from 01-05-2019 of 10.00 AM to 31-05-2019 upto 5.00 PM. However, duly filled application forms along with late fee of Rs. 1000/= will be accepted from 01-06-2019 of 10.00 AM to 03-06-2019 upto 5.00 PM.
4. The name should be filled in BLOCK LETTERS and should be the same as given in the certificate of the last examination passed.
5. Before applying online, candidate must ensure that he/she has scanned image of his photograph, signature and thumb-impression in JPEG/JPG format saved on the computer; uploading all of these is MANDATORY. Candidate should also have his/her payment mode details handy.
6. Open the first link, and fill in Part-I of the on-line application form (personal details).
7. While filling up the application form, the candidates shall prefer to write his own contact No(s), email Id for receiving updates from time to time.
8. After submission of personal details at Part-I, you will be directed to second link and fill-in the Part II of application form (academic details).
9. After submitting Part-II, programme will automatically take you to Part III for uploading of Photograph, signature and thumb impression. Upload images of photograph, signature, and thumb impression in JPEG format.
10. Once successfully done, candidate will be shown his/her complete details as recorded at part-IV of the form. Candidate is required to thoroughly check all the details.
11. At the bottom of the page candidate will have the options of printing application form. Take a print out for your record.
12. Candidate can make online payment through any Credit Card/Debit Card/Net Banking.
13. Take print out of confirmation page(s) of online application format and preserve it for future reference.
14. Admission form incomplete in any respect shall be rejected.
15. Seeking admission on the basis of false identity, misrepresentation by submitting false certificates/ documents or suppression of any material fact is unlawful and will result in cancellation of admission at any point of time when discovered.
16. The applicant can check the status of his/her fee online (www.skuast.org) one week after depositing the fee.
17. In case the status remains unpaid even after one week, candidate can approach Examination Cell, SKUAST Jammu with the copy of their Confirmation page of online payment
18. For any assistance, please call **09419226376**. Before you call please make sure that you have read all the conditions properly and have gone through the Information Brochure in totality. All the topics/issues covered in the Information Brochure/instructions herewith will not be replied.

J. SELECTION PROCEDURE

- The selection and allotment of UG stream will be purely based on the rank secured in the SKUAST-J Common Entrance Test as per choice/preference indicated in the counselling form.
- The selection and allotment of PG stream will be purely based on the rank secured in the SKUAST-J Common Entrance Test and option made at the time of counselling.
- There will be a separate merit list for each category as listed in the Information Brochure.
- All the selections made by the University to undergraduate/postgraduate programmes shall be provisional till final verification of eligibility of the candidates by the University.
- The University shall have the power to review and reframe the provisional selection list in case of any bonafide error, lapse, mistake, fraud, misrepresentation or inadvertently crept injustice that might have occurred and comes to the notice of the university before completion of the selection process or after the selection/admission process. Mere figuring in the selection list does not confer any right to admission of the candidate to a university programme if he/she is otherwise not found to be eligible on detection of an error/ mistake/ fraud/ misrepresentation/ impersonation at any stage during the degree programme.
- The recommendation of the candidates by the selection committee for admission in the university in all the categories shall be subject to production of all the relevant certificates in original at the time of counselling.

K. ADMIT CARD

- Only for those candidates who fulfil the prescribed requirements for the programme, to which they have applied, will be issued the photo Admit Cards depicting roll no, name of Centre of Examination, date and timing of the test. The Admit Card can be downloaded from the University web site www.skuast.org.
- If Admit Card is not downloaded two days before the date of the Entrance Test, the candidate may contact the office of the Examination Cell, SKUAST Jammu, Chatha, with a photograph same as uploaded on e-form for obtaining Duplicate Admit Card.
- No Admit Card, in any case will be issued on the day of the Entrance Test.

L. EVALUATION OF ANSWER SHEETS

- i. The University shall make the answer key available on its website the following day of the examination.
- ii. Objection regarding the key, if any, with authenticated proof from standard quality text books shall be entertained through email for two days upto 12 O' clock mid night after uploading of key.
- iii. The updated key (with modifications, if any) shall be made available on the web site of the university.
- iv. Where a question has ambiguous language, which conforms to more than one answer among the given options, all such answers, shall be considered correct and if a student had responded with any one of the correct answers he/she will be given a mark for that question.
- v. Where none of the option given to a question is correct, the question will not be considered in evaluation and one mark will be given to all the candidates whether they have attempted this question or not.
- vi. The evaluation of the answer sheet is carried out mechanically so there is no chance of any mistake. The result declared after the machine marking shall be final and not open to any manual check. The students must avoid making faint marks or ambiguous impressions or incomplete marks on the OMR Sheet, which may result in errors in evaluation. It is therefore in the interest of the candidates to fill up OMR answer sheet carefully as shown in this Information Brochure. The re-evaluation of the answer sheets manually is not allowed, as that will infringe upon the rule of equality, which calls for a uniform treatment given to all the students.

M. DETERMINATION OF MERIT

- The merit list for each course shall be prepared on the basis of inter-se merit and option/choice of the candidates in the SKUAST-J CET 2019 in the descending order for Open Merit Category and for each Reserved Category, separately.
- Any subsequent vacancy caused by whatsoever reason in any category shall be filled from amongst the candidates of that particular category strictly according to merit. In the event of non-availability of eligible candidates from that reserved category, the relevant vacancies shall be filled through NRI/self-financing category as the case may be.
- In case two or more candidates obtain equal marks, the inter-se merit of such candidates shall be determined as per the order of preference as under.
 - (a) **Undergraduate**
 - i. Candidates obtaining higher marks in Biology/or Mathematics as the case may be
 - ii. Candidates obtaining higher marks in Biology/or Mathematics and Chemistry in aggregate, if marks, in Biology/or Mathematics are equal.
 - iii. Candidates older in age to be preferred if points as per (i) and (ii) are equal.
 - (b) **Postgraduate**
 - (i) Candidates obtaining higher marks at graduation level
 - (ii) Candidates older in age to be preferred if points as per (i) are equal

N. DECLARATION OF RESULT

- i. No intimation, whatsoever about non-selection will be sent individually and no correspondence in this regard shall be entertained. The result shall, however, be made available in the office of the Registrar, SKUAST-Jammu. The result will also be posted at the University website, www.skuast.org
- ii. Candidates, whose result of the qualifying examination is not declared by the time of counselling, will not be considered for admission.
- iii. Selection of the candidates in all the categories shall be subject to production and verification of all the relevant certificates in original at the time of counselling.

O. COUNSELLING FOR ALLOTMENT OF DISCIPLINE

- i. The candidates must come for counselling along with all documents in original, a set of attested copies of all documents, admit card issued by SKUAST-J and a counselling fee of Rs 1000/= (non-refundable).
- ii. Candidate must mark his/her attendance by putting his/her full signature at the time of counselling.
- iii. The candidates called for counselling must produce one set of original and one set of attested copies of following certificates along with duly filled in option form.
 - Permanent resident certificate
 - Date of birth certificate (Matriculation certificate)
 - Marks certificate of qualifying examination
 - Category certificate, if applicable
- iv. **The NRI/NRI sponsored candidates shall have to submit proof of NRI status at the time of counselling.**

Any of the following documents shall be considered as a proof of NRI status:

a) **NRI candidates**

- Attested copy of Resident Card/Green Card/Employment Card issued by competent authority of the country of residence/the employer.
- Attested copy of immigration/employment visa entry on the passport along with details of passport
- Certificate of residence attested by the Indian Embassy/High Commission in that country where NRI is residing.
- Attested photocopy of the latest income tax assessment either in India or the country of employment filed in the status of Non Resident Indian.

b) NRI Sponsored candidates:

- Attested copy of Resident Card/Green Card/Employment Card issued by the employer, of sponsorer.
 - Attested copy of immigration/employment visa entry on the passport along with details of passport of sponsorer
 - Certificate of residence attested by the Indian Embassy/High Commission in that country where sponsorer NRI is residing.
 - Attested photocopy of the latest income tax assessment either in India or the country of employment filed in the status of sponsor Non Resident Indian.
- c) The NRI sponsored candidates shall have to produce Certificate of sponsorship in original from sponsor NRI on the prescribed format only duly attested by solicitor/legal authority in the country of NRI's residence on or before 08-07-2019 at the time of counselling, failing which the candidate will forfeit the claim for admission. Photocopy or scanned copy of the certificate will not be considered (Prescribed format given as Annexure B at the end of Information Brochure)**
- d) In addition to a, b & c above, the NRI/NRI sponsored candidates shall have to also submit the following documents in original at the time of counselling:**
- Date of birth certificate (Matriculation certificate)
 - Marks certificate of qualifying examination

Note: No Under Process certificate shall be entertained at the time of counselling

- v. After payment of prescribed admission fee, the candidates are advised for registration on scheduled date, failing which admission shall get automatically cancelled and fees deposited shall get forfeited.
- vi. The candidate who has deposited the counselling fee once, need not to deposit fee in the succeeding counselling(s), in case such situation is warranted. However, candidate has to produce receipt of the same at the time of subsequent counselling.
- vii. The candidates must appear in-person for counselling. However, in case of unavoidable reason a candidate is not able to appear in-person, he/she may send his/her authorized representative with authority letter duly signed by the candidate in original, admit card, admission fee and all other documents required for admission(refer item no. iii & iv)
- viii. If a candidate or his/her representative fails to appear for counselling on the specified date but intends to appear on next date or any date during subsequent notified counselling schedule, he/she will be allowed for such counselling after depositing Rs. 1500 /-(non-refundable) as counselling fee. Further, the candidate shall be considered for seat in a course available at that point of time. Such candidates cannot stake any claim whatsoever on any other seat already allotted despite their merit.
- ix. Candidates shall have to join the course after allotment of discipline within the specified time period. Where a candidate fails to join the course within the stipulated time period, his/her selection shall be cancelled and the seat so vacated shall be allotted to the next candidate in merit.
- x. In case some seats remain vacant even after last round of counselling, the University shall call all candidates who have appeared in SKUAST-J CET for walk-in counselling and the selection shall be made on the merit of SKUAST-J CET among the candidates appearing in the walk-in counselling.
- xi. If a candidate or his authorized representative fails to appear for counselling during the entire notified period of counselling schedule, he/she will forfeit all claims for admission.
- xii. Selected candidates must take admission immediately after the counselling or before the date & time specified.

P. FEE STRUCTURE FOR UNDERGRADUATE/POSTGRADUATE PROGRAMMES

(a) At the time of 1st admission

		Undergraduate Programmes	Postgraduate Programmes
		Rs.	Rs.
1	Admission fee	5000	6000
2	University Registration fee	3000	5000
3	Caution/Security Money for Library (refundable)	3000	3000
4	College Laboratory Development charges	500	1000
5	Semester Registration fee	500	800
6	Tuition fee	2000	4000
7	Examination fee	1000	1000
8	Extra Curricular Activities fee	500	500
9	Medical Examination fee	200	200
10	Magazine fund (per annum)	200	200
11	Identity card	100	100
12	Placement and counselling fund	100	Nil
13	Educational Tour	3000	Nil
	Total (A)	19100	21800
	Hostel Charges		
1.	Hostel Charges (Room rent) Per Semester		
i.	Single seater	3500	3500
ii.	Dormitory	2500	2500
iii.	NRI Rooms	5000	5000
2.	Hostel Security (refundable) for fresh admission	4000	4000
3.	Mess security in case of Hostel inmates for fresh admission (refundable)	4000	4000
4.	Hostel maintenance fund per Semester	500	500
5.	Utensils crockery breakage fund	150	150
6.	Common Room Fund (Hostellers)	300	300
7.	Electricity charges Per semester	2000	2000
8.	Generator charges Per Semester per Students	3000	3000
9.	Total (B)		
i.	Single seater	17450	17450
ii.	Dormitory	16450	16450
iii.	NRI Rooms	18950	18950
11.	G Total (A+B) =		
i.	Single seater	36550	39250
ii.	Dormitory	35550	38250
iii.	NRI Rooms	38050	40750

(b) Recurring Semester Fee (per semester)

		Undergraduate Programmes	Postgraduate Programmes
(A)		Rs.	Rs.
1	Semester Registration fee	500	800
2	Tuition fee	3000	6000
3	Examination fee	1000	1000
4	Extra Curricular Activities fee	1000	1200
5	Medical Examination fund/fee	200	200
6	Magazine fund (per semester)	100	100
7	Amalgamated fund	600	600
8	Library Fee	300	300
9	Infrastructure development fund	500	500
10	Student Welfare Fee	500	500
11	Water Charges	100	100
	Total (A)	7800	11300
(B)	Hostel Charges (Room rent)		
1	Single seater	3500	3500
	Dormitory	2500	2500
	NRI Rooms	5000	5000
2	Hostel maintenance fund	500	500
3	Utensils crockery breakage fund	150	150
4	Common Room Fund	300	300
5	Electricity charges	2000	2000
6	Generator charges	3000	3000
	Total (B)		
	Single seater	9450	9450
	Dormitory	8450	8450
	NRI Rooms	10950	10950
	G.Total (A+B)		
	Single seater	17250	20750
	Dormitory	16250	19750
	NRI Rooms	18750	22250

Q. OPTIONAL CHARGES (Per Semester)

		Rs.	Rs.
a	Refrigerator in room	800	800
b	Air Cooler	2500	2500
c	Electric Blower	2500	2500
d	Air Conditioner	12000	12000

Note: University shall not provide any of the above-mentioned appliances.

R. Fee structure for self-financing seats in addition to normal fees**a) Fee structure for self-financing seats in addition to normal fees other than B.V.Sc & A.H (per semester)**

S.No	Programme	Category	Fees (Rs.)
1.	B.Sc (Hons) Ag	NRI/ NRI Sponsored	30000
		Ward of serving employee of SKUAST-J / State domicile seats	18000
2.	B.Tech. Biotechnology	Self Financing	50000
3.	M.Sc/MSc (Ag) /MVSc (All courses except Biotechnology)	Self Financing	30000
4.	M.Sc (Biotechnology)	Self Financing	50000

b) Fee structure for self-financing seats in addition to normal fees B.V.Sc & A.H (per year)

S.No	Programme	Category	Fees (Rs.)
1.	B.V.Sc & AH	NRI/NRI sponsored	2,00,000
		Ward of serving employee of SKUAST-J	1,50,000
		State domicile seats	1,50,000

Note: As per VCI regulations 2016 the annual system curriculum has been adopted for B.V.Sc. & A.H from session 2016-17. Hence, the fee for students admitted under the new system shall on annual basis as given below.

Normal Fee Seats	Rs. 26900/- excluding hostel charges
NRI/NRI Sponsored	Rs. 200000/- + 26900/- excluding hostel charges
Ward of serving employee of SKUAST-J/State domicile	Rs. 150000/- + 26900/- excluding hostel charges

S. Medical & Accidental Insurance

S.No.		Undergraduate	Postgraduate
1.	Medical & Accidental Insurance on annual basis during the degree programme	Rs. 1183/-	Rs. 1183/-

Note: the candidates have to deposit the prescribed amount in full at the time of admission and subsequently at each academic year.

Refund of Fee: If a Student withdraws from a course after admission, the fee deposited by the Student shall be refunded after deduction of Rs. 1000/- (One thousand only) as processing fee in case the candidate withdraws from the programme before the date of next counselling but not later than the start of the course (i.e registration date), whichever is earlier.

T. GENERAL INSTRUCTIONS FOR TEST

- Entrance Examinations will start at 10:00 A M sharp and will be for three hours duration for selection to undergraduate programmes and 2.30 hrs. for post graduate programme.
- The candidates must reach the Centre of Examination at 9:00 AM sharp.
- Candidate must get seated to respective seats 30 minutes before start of examination.
- 15 minutes before start of actual examination OMR sheet shall be provided to candidate.
- Question papers shall be distributed sharp at 09:55 AM
- Candidates arriving late by more than half an hour will not be permitted to appear in the test.
- Calculator, log tables, pager, mobile phone, notebook or written notes, pamphlets, slide rules, protractors, rulers, highlighters dictionary etc. are not allowed inside the Examination Hall. Any violation would amount to disqualification of candidature.
- Use of correcting fluid / eraser/ ink remover including use of blade on OMR Answer sheet is strictly prohibited and any discrepancy in the evaluation on account of ignoring this caution shall be the sole responsibility of the candidate.
- The candidates are expected to behave responsibly while appearing in the entrance examination and shall not adopt any unfair/ fraudulent/ mischievous means. The candidates herein are sternly warned not to resort to any unfair/fraudulent means or act of impersonation. In case a candidate is found resorting to such acts during the test, criminal proceedings shall be initiated under rules.
- Any candidate who creates disturbance of any sort during the test or otherwise misbehaves in or around the Examination Centre or exchanges his/her seat with any candidate will be expelled from the test.
- Any candidate having in his/her possession or in his/her access any paper/book or note which may have potential of providing assistance, or copying from any paper/book or note or allowing any other candidate to copy from his/her answer sheet or found writing on any other paper, or using or attempting to use any other unfair means will be expelled from the test.
- The decision of the Centre Superintendent/Coordinator/Controller of Examinations to expel a candidate from the examination centre shall be final.
- If a candidate puts any identification mark on the OMR sheet, the same shall be cancelled. The decision of the university in this regard will be final.
- Disabled students shall be granted an extra time @ 20 minutes per hour in entrance tests.

U. INSTRUCTIONS FOR ATTEMPTING PAPER

- Read the given instructions on the question paper carefully.
- Write your roll number only in the space provided on the question paper and OMR sheet and nowhere else.
- The candidates are required to follow the correct procedure while attempting the question paper. Darken the oval pertaining to the most appropriate answer on the OMR sheet. If you darken more than one oval, your answer will be treated as wrong. Incorrect marking will also be taken as wrong answer. For example, if you think that the answer given against choice (B) for question number 1 is the most appropriate, then darken the oval (B) given against 1 (the number of that question) as follows on the OMR sheet:

Correct Method



Wrong Method



Wrong Method



Wrong Method



- Do not use any other mark except to darken the oval.
- The candidates will not be allowed to leave the examination hall within first 60 minutes of commencement of the examination and during the last 30 minutes.
- Each correct answer will carry one mark and each wrong answer shall fetch minus 0.25 (-0.25) marks per question.
- There will be no re-evaluation of the answer sheets.

V. CANDIDATES MUST BRING

- Two ball point pens (blue/ black ink).
- Admit card issued by the University.
- Valid Identity such as Aadhar/Election Card

W. TEST STRUCTURE

(a) Undergraduate:

The test shall comprise of one paper of three (3) hours duration. It will be split into different sections covering different subjects. The course contents as well as the level of the paper shall be that of the qualifying examination. The paper will contain 180 multiple choice objective type questions. Each question will carry one mark. For correct one answer 1 mark will be given and for incorrect answer $\frac{1}{4}$ mark will be deducted. The subjects for the SKUAST-J Common Entrance

Test-2018, shall be as under:

Physics

60 (compulsory for all courses)

Chemistry

60 (compulsory for all courses)

Biology/or Mathematics*/or Agriculture*

60 (students have to appear in any of the three Subjects as the case may be)

*Mathematics/or Agriculture can only be taken by the candidates appearing for admission to B.Sc. (Hons.) Agriculture.

Model Questions

PHYSICS

1. A particle starts with initial velocity for 10m S^{-1} . It covers a distance of 20 cm along a straight line in two seconds. What is the acceleration of particle?
(A) Zero (B) 1m/S^2 (C) 10m/S^2 (D) 20m/S^2
2. What is the barometric height of a liquid of density 3.4 g cm^{-3} at a place where that for mercury barometer is 70 cm?
(A) 70 cm (B) 140 cm (C) 280 cm (D) None of these

CHEMISTRY

1. The electronic configuration 2, 8, 8, 2 represents the element:
(A) Argon (B) Potassium (C) Calcium (D) Chlorine
2. In a double bond connecting two atoms there is sharing of:
(A) 2 electrons (B) 4 electrons (C) 1 electron (D) 6 electrons

BIOLOGY

1. One of the following terms involves all others?
(A) Stock (B) Scion (C) Graft (D) Cambium
2. The following plant has male and female reproductive parts in the same flower:
(A) Papaya (B) Date palm (C) Cycas (D) Datura

(b) Postgraduate

Examination Schedule

Duration: $2\frac{1}{2}$ hours. Time 10.a.m to 12.30 pm

Major subjects

There will be six major subject groups as given in the table below. Candidate shall have to appear in one major subject group.

Major Subject Group	Code
Basic Sciences	01
Agricultural Sciences	02
Statistics	03
Forestry	04
Sericulture	05
Veterinary Sciences	06
Agricultural Engineering	07

The examination shall have one question paper each for concerned major subject group.

The questions will consist of 150 multiple choice objective type questions, each with four options.

- i. In each major subject group, 150 multiple choice, objective type questions would be serially numbered from 1-150 and will carry one mark each.
- ii. Candidate will be required to choose the correct answer and mark in the OMR answer Sheet by darkening the corresponding circle/ bubble against the serial number of the question with black/ blue ink ball-point pen.
- iii. For correct answer 1 mark will be given and for incorrect answer $-\frac{1}{4}$ mark will be deducted.

SYLLABUS FOR SKUAST-J ENTRANCE TEST FOR ADMISSION TO UNDERGRADUATE PROGRAMMES

Note: The syllabus for the entrance test shall include the contents as prescribed for 10+1 and 10+2 by the J&K State Board of School Education for the subjects of Physics, Chemistry and Biology. The syllabus for agriculture subject is as prescribed by the university. However, for the convenience of the students, the contents of the syllabus are reproduced hereunder:

A. PHYSICS (2-4 marks from each unit)

UNIT 1: PHYSICAL WORLD AND MEASUREMENT

scope and excitement, nature of physical law, physics, technology & society. SI units, Fundamental and derived units. 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: Position-time graph, speed and velocity. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity-time, position-time graphs, relations for uniformly accelerated motion, (graphical treatment and calculus approach). Scalar and Vector quantities, addition and Subtraction of vectors, general Vector and notation, Relative Velocity. Scalar and Vector products of two vectors with properties, unit vector, resolution of a vector in plane rectangular components, Motion in a plane, Projectile Motion, cases of uniform velocity and uniform acceleration.

UNIT 3: LAWS OF MOTION

Intuitive concept of force and 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. Friction, static and kinetic friction, laws of friction, rolling friction. Dynamics of uniform circular motion: Centripetal force and examples of circular motion (vehicle on level circular road, vehicle on banked road.) .

UNIT 4: WORK ENERGY AND POWER

Concept of scalar products of vectors, Work done by a constant force and, variable force; kinetic energy, work energy theorem, power. Potential energy, Potential energy of spring, conservative forces, conservation of mechanical energy (K.E. and P .E.), non-conservative forces; Elastic and inelastic collision in one and two dimensions.

UNIT 5: MOTION OF SYSTEM OF PARTICLES AND RIGID BODY

Centre of mass of a two-particle system, Centre of mass of a rigid body; concepts of vector product of vectors: moment of a force, torque, angular momentum, conservation of angular momentum with some examples. moment of inertia, radius of gyration. Values of moment of inertia for simple geometric objects (no derivation), statement of parallel and perpendicular axes Theorems and their applications. Rigid body rotation and equations of rotational motion.

UNIT 6: GRAVITATION

The universal law of gravitation. Acceleration due to gravity and its variation with altitude, depth and shape, Kepler's laws of planetary motion/ Gravitational potential; gravitational potential energy. Escape velocity. Orbital velocity of satellite. Geo-stationary satellites.

UNIT 7: PROPERTIES OF BULK MATTER

Elastic behavior, Stress-strain relationships, Hooke's Law, Young's modulus, bulk modulus, shear modulus of rigidity. pressure due to a fluid column- Pascal's law and its applications (hydraulic lift and hydraulic brakes) Viscosity, Stoke's law, terminal velocity, streamline and turbulent flow, Renold number/ Bernoulli's theorem and its applications Surface energy and surface tension, angle of contact, applications of surface tension ideas to drops, bubbles and capillary action. Heat, temperature, thermal expansion; specific heat, calorimetry; change of state-latent heat. Heat transfer-conduction, convection and radiation, thermal conductivity, Newton's law of cooling.

UNIT 8: THERMODYNAMICS

Thermal equilibrium and definition of temperature (Zeroth law of thermodynamics), Heat work and internal energy. First law of thermodynamics. Second law of thermodynamics: reversible and irreversible processes. Heat engines and refrigerators (concept only).

UNIT 9: BEHAVIOUR OF PERFECT GAS AND KINETIC THEORY

Equation of state of a perfect gas, work done on compressing a gas. Kinetic theory of gases assumptions, concept of pressure. Kinetic energy and temperature: rms speed of gas molecules; Degrees of freedom, Law of equipartition of energy (Statement only) and applications to specific heat capacities of gases- concept of Mean free path, Avogadro's number.

UNIT 10: OSCILLATIONS AND WAVES

Periodic motion Period, frequency, displacement as a function of time. Periodic functions. Simple harmonic motion (S.H.M.) and its equation; phase; oscillations of a 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, resonance. Wave motion. Longitudinal and transverse waves, speed of a wave. 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. Conservation of charge, Coulombs law -forces 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 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).

Electric potential, electric potential due to a point charge, a dipole and system of charges; Equi-potential surfaces, Electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field. ~conductors and insulators, Dielectrics and electric polarization, capacitor and capacitance, combination of capacitors in series and in parallel, capacitance of parallel plate capacitor with and without electric medium between the plates, Energy stored in a capacitor.

UNIT 12: CURRENT ELECTRICITY

Electric current, Drift velocity, Ohms law, Electrical resistance, V-I characteristics linear & non-linear), Electrical energy and power, Electrical resistivity and conductivity, Colour code for carbon 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/ Kirchhoffs laws and their applications/ Wheatstone bridge, Meter bridge. Potentiometer principle and its application to measure the potential difference and for comparing e.m.f. of two cells; measurement of internal resistance of a cell.

UNIT 13: MAGNETIC EFFECTS OF CURRENT AND MAGNETISM

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. Force on 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 conversation with examples. Current loop as a magnetic dipole and its magnetic dipole moment, magnetic field lines; Earth's magnetic field and magnetic elements. Para-, dia- and ferro-magnetic substances with examples. Electromagnets and factors affecting their strength, permanent magnets.

UNIT 14: ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS

Electromagnetic induction. Faradays law, induced emf and current - Lenz's Law/ Eddy currents. Self and mutual inductance. Alternating currents, peak and rms value of alternating current/ voltage; reactance and impedance; LC oscillations (qualitative treatment only) & LCR series circuits, resonance; power in AC circuits, wattless current. AC generators and transformer.

UNIT 15: ELECTROMAGNETIC WAVES

Electromagnetic waves and their characteristics. Transverse nature of electromagnetic waves. Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

UNIT 16: OPTICS

Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and its applications, Refraction at spherical surfaces, thin lens formula, Lens-makers Formula, Magnification, Power of a Lens. Combination of thin lenses in contact, Microscopes and Astronomical Telescope (reflecting and refracting) and their magnifying powers. Wave optics: wave front and Huygens principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proofs of laws of reflection and refraction using Huygen's principle. Interferences, Coherent sources, Young's double slit experiment and expression for fringe width, Diffraction due to a single slit, width of central maximum. Resolving power of pes and astronomical telescopes, Polarization, plane polarized light; Mallus's law, Brewster's law, uses of plane polarized light and Polaroids.

UNIT 17: DUAL NATURE OF MATTER AND RADIATION

Dual nature of radiation/ Photoelectric effect, Hertz and Lenard's observations, Einstein's - photoelectric equation-particle nature of light/Mater waves-wave nature of particle, de Broglie relation. Davisson-Germer experiment

UNIT 18: ATOMS AND NUCLEI

Alpha-particle scattering experiment- Rutherford's model of atom- Bohr's model energy levels, hydrogen spectrum. Composition and size of nucleus, masses, isotopes, isobars; isotones. Radioactivity-alpha, beta and gamma 'rays and their properties; radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number, nuclear fission and fusion.

UNIT 19: ELECTRONIC DEVICES

Semiconductors; semiconductor diode: I -V characteristics in forward and reverse bias; diode as a rectifier; I-V characteristics of LED, photodiode, solar cell and Zener diode; Zener diode as a voltage regulator. Junction transistor and its action, characteristics of a transistor; transistor as an amplifier (common emitter configuration) and oscillator. Logic gates (OR, AND, NOT) concept of NAND and NOR gates. Transistor as a switch.

UNIT 20: COMMUNICATION SYSTEM

Basic elements of 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. Need for modulation: Production and detection of an amplitude modulated wave.

B. Chemistry (2-4 marks from each unit)

UNIT 1: CHEMICAL ARITHMETIC, ATOMIC STRUCTURE AND NUCLEAR CHEMISTRY

Laws of chemical combination, mole concept (numericals) calculations using chemical equations. Equivalent weight of oxidizing and reducing agents. Atomic structure, Bohr's model of Hydrogen atom, Quantum numbers, Pauli's exclusion principle, Hund's rule and Aufbau principle/ Heisenberg's uncertainty principle, de-Broglie wave equation and its significance.

UNIT 2: CHEMICAL EQUILIBRIUM

Law of mass action, Le-Chatelier's principle, and its application to physical and chemical equilibria/ Ionisation of weak electrolytes (Ostwalds dilution law). Acids and bases: Acid base equilibria. Bronsted-Lowry and Lewis concept, of acids and bases. Ionic product of water. pH and pOH scales, pKa & pKb values, solubility product, buffer solutions common ion effect, hydrolysis of salts.

UNIT 3: CHEMICAL KINETICS

Effect of concentration and temperature on rate of chemical reactions, Arrhenius equation) temperature co- efficient, Concept of activation energy, first and second order reactions, half-life period, Units of rate constants for zero, first and second order reactions.

UNIT 4: SOLUTIONS

Different ways of expressing the concentration of solutions (molarity, molality, mole fraction, ppm and normality), vapour pressure, Raoult's law, ideal and non - ideal solutions, colligative properties, determination of molecular masses of non- volatile solutes using various colligative properties, abnormal molecular masses and Vant Hoff factor.

UNIT 5: CHEMICAL THERMODYNAMICS

Energy changes during chemical reactions, internal Energy and enthalpy changes enthalpy of combustion solution and neutralization, Hess's Law (Numerical problems). first, second, third law of thermodynamics, concepts of entropy and free energy, spontaneity of a chemical reaction and thermodynamic equilibrium.

UNIT 6: REDOX REACTIONS AND ELECTROCHEMISTRY

Determination of oxidation numbers, oxidation and reduction in terms of electron transfer, dependence of electrode and cell potential on concentration (Nernst Equation), electrode potential as a criteria for product formation in electrolysis. E.M.F. of Galvanic cell, relationship between free energy change and E.M.F. of a cell, definition and units of equivalent, molar and specific conductivity.

UNIT 7: SOLID STATE & STATES OF MATTER

Boyle's Law, Charle's law, Dalton's law of partial pressure, Graham's law of diffusion of gases, causes of deviation from ideal behaviour, ideal gas equation and nature of R, Vander Waals equation, surface tension and viscosity of liquids, crystalline and amorphous solids, crystal lattice, crystal types, Packing efficiency, calculation of density of unit cell, number of atoms per unit cell in a cubic cell, co-ordination number, stoichiometric defects (Schottky, Frenkel and interstitial defects.), Properties of solids(electrical, magnetic & dielectric)

UNIT 8: SURFACE CHEMISTRY & POLYMERS

Freundlich absorption isotherm, preparation of colloidal solutions by physical and chemical methods, electrical properties (cataphoresis, electrosmosis, coagulation and protective colloids) homogeneous and heterogeneous catalysis. Classification of polymers, addition and condensation free radical cationic and anionic polymerization, commercially important polymers.

UNIT 9: PERIODIC PROPERTIES

Classification of elements into s, p, d, and f blocks, variation of ionization energy, electron affinity, electro-negativity, atomic and ionic radii along the period and down the group.

UNIT 10: CHEMICAL BONDING AND MOLECULAR STRUCTURE

Types of chemical bonds, Ionic & covalent bonds, Bond parameters, quantum theory of covalent bond, pi and sigma bonds, hybridization involving s, p and d- orbitals, dipole moments and hydrogen bond. VSEPR-theory and shapes of simple molecules like H₂O, NH₃, SO₂, CO₂, PCI₃, PCIS, CIF₃, BF₃, SF₄, XeF₂, XeF₄ Molecular orbital theory, bond order and its significance, electronic configuration of H₂, H₂⁺, He₂, O₂, O₂⁻ & F₂.

UNIT 11: CHEMISTRY OF REPRESENTATIVE ELEMENTS.

(S and P Block Elements) Electronic configuration, oxidation states and trends in various properties like ionization energy, electron affinity, atomic radii, electro negativity and diagonal relationship of sand p block elements.

- Alkali metals: Hydration of ions, action with ammonia, flame colouration, solubility of hydroxides, carbonates and sulphates.
- Alkaline Earth Metals: Solubility of carbonates, hydroxides and sulphates.
- Boron Family: Structure of halides, relative acid strength of trihalides of boron.
- Carbon family: Hydrides and oxides.
- Nitrogen family: Oxides of nitrogen and phosphorous, Reducing nature, basic strength and boiling points of their halides.
- Oxygen family: Volatility, thermal stability, and acid character, reducing character and bond angles of their hydrides, oxyacids of sulphur.
- Halogen family. Bond energy, colour and oxidizing power, boiling point, acid strength and dipole moment, thermal stability, reducing power of hydracids, relative acidity and oxidizing power of oxyacids of halogens.

UNIT 12: TRANSITION METAL INCLUDING LANTHANIDES

Electronic configuration, oxidation states, colour and magnetic properties of transition elements oxides of V, Cr and Mn, alloys of copper silver and iron, oxidation states of lanthanides.

UNIT 13: CO-ORDINATION CHEMISTRY AND ORGANOMETALLICS

Werner's coordination theory, nomenclature, isomerism in co-ordination compounds (ionization, linkage, hydrate, co-ordination, geometrical and optical), bonding in co-ordination compounds on the basis of V.B. theory, stability of co-ordination compounds in solution, Ferrocene and Zeises salt.

UNIT 14: CHEMISTRY OF METALS

General aspects of Metallurgy, metallurgy of iron, copper and zinc and their properties, various forms of iron.

UNIT 15: NOMENCLATURE AND BASIC CONCEPTS IN THE ORGANIC CHEMISTRY

Nomenclature of organic compounds (monofunctional and polyfunctional groups), inductive, electromeric resonance and hyperconjugation effects, reaction intermediates, carbocations, carbanions and free radicals with their general stability order, types of organic reactions (addition, substitution, elimination and redox reactions), aromaticity on the basis of Huckel rule. Ortho, meta and para directing groups.

UNIT 16: HYDROCARBONS

Structural isomerism in alkanes, alkenes, alkynes and arenes, stereoisomerism: geometrical and optical isomerism, chirality, origin of chirality, specific rotation, racemisation and resolution, conformations in ethane and cyclohexane, relative configuration (D,L-Nomenclature), absolute (R and S system of nomenclature). Relations of hydrocarbons:- Addition, Substitution and Oxidation reactions, electrophiles and nucleophiles; acidic character of alkynes.

UNIT 17: ORGANIC CHEMISTRY BASED ON FUNCTIONAL GROUP-I

Haloalkanes, haloarenes, alcohols and phenols, General methods of preparation properties of haloalkanes, chloroform, iodoform.

UNIT 18: ORGANIC CHEMISTRY BASED ON FUNCTION GROUP-II

(Ethers, aldehydes and ketones, monocarboxylic acids). General methods of preparation and properties of ethers, aldehydes, ketones and monocarboxylic acid derivatives of monocarboxylic acids like, acid halides, acid anhydrides acid amides and esters, relative strength of carboxylic acids.

UNIT 19: ORGANIC CHEMISTRY BASED ON FUNCTIONAL GROUP-III

(Cyanides, isocyanides, nitro compounds and amines) General methods of preparation and properties of cyanides, Isocyanides, nitro compounds and amines, relative basic character of amines

UNIT 20: MOLECULES OF LIFE (BIOMOLECULES)

Carbohydrates: definition, classification, mutarotation, structure of aminoacids, peptides and proteins (Molish and ninhydrin tests). classification and uses of vitamins. Chemicals in medicine and health care, dyes and drugs, chemical reactions in atmosphere, ozone depletion and its effects. acid rain, green house effect & global warming

C. BIOLOGY (3-5 marks from each unit)

a. BOTANY

UNIT: 1 DIVERSITY AND CLASSIFICATION OF PLANTS

Systematics need and history; Salient features of two and five kingdom systems their merits and demerits; types of classifications (artificial, natural and phylogenetic); General characters of algae, fungi, bryophytes, lichens---basic characteristics pteridophytes, gymnosperms and angiosperms; Status of some a cellular organisms like viruses viroids;.

UNIT-2: MORPHOLOGY AND ANATOMY OF PLANTS

Morphology of root, stem and leaf and their modifications; types of inflorescence, flower, fruit and seed. Description of Liliaceae, Fabaceae, Solanaceae. Tissues and tissue system: Types of tissues (meristematic and permanent) and their functions. Anatomy of dicot and monocot root, stem and leaves; secondary growth.

UNIT 3: PLANT PHYSIOLOGY

Transport in plants: Mechanisms of transport diffusion, facilitated diffusion, Passive and active transport. Plant water relations: Water potential; osmosis; plasmolysis; imbibition; long distance transport of water; apoplast, symplast pathways; ascent of sap; root pressure theory and transpirational pull theory. Transpiration: Types and significance; mechanism of opening and closing of stomata, guttation; phloem transport (Mass Flow hypothesis) Mineral Nutrition: Criteria for essentiality of nutrients; macro and micro nutrients their role and deficiency symptoms. Mechanism of nutrient uptake by plants from soil. Nitrogen metabolism nitrogen cycle, biological nitrogen fixation. Photosynthesis: Historical background; site of photosynthesis; various photosynthetic pigments; mechanism of light reaction; photophosphorylation (cyclic and non- cyclic); Dark reaction-fixation of carbon dioxide (C₃ cycle, C₄ cycle); factors affecting photosynthesis; photorespiration. Respiration: Introduction; glycolysis, Krebs's cycle, Electron Transport System; Aerobic and anaerobic respiration; respiratory quotient. Growth and Development: Characteristics and phases of plant growth; growth curve; differentiation, dedifferentiation and re-differentiation; plant growth regulators- discovery, nature and physiological effects of auxins, gibberellins, cytokinins, ethylene and abscisic acid. Photoperiodism and vernalisation.

UNIT -4: REPRODUCTION IN FLOWERING PLANTS

Modes of reproduction in flowering plants (Vegetative, asexual and sexual); flower structure, development of male and female gametophytes; Pollination types, agencies and examples; in-breeding and out-breeding, factors promoting out-breeding, pollen-pistil interaction; double fertilization; post-fertilization events; development of endosperm, embryo, seed and fruit; apomixis and polyembryony; types and importance.

UNIT -5: GENETICS

Heredity and variation (somatic and germinal)- Mendel's laws of inheritance- I deviations from Mendelism; incomplete dominance; co-dominance; multiple/alleles; pleiotropy; chromosomal theory of inheritance. Evidence for DNA as genetic material; structure of DNA and RNA; DNA packaging; I DNA replication; Protein synthesis transcription, translation, genetic code; gene expression and regulation (lac-operon).

UNIT -6: ECOLOGY AND ENVIRONMENT

Meaning of ecology, community, ecosystem and niche. Population and ecological adaptations: Characteristics of populations (birth rate (natality /fecundity), death rate (mortality) and age distribution; population interactions; competition, predation, parasitism and mutualism.

Ecosystems: Biotic and abiotic components; energy flow, nutrient cycling (carbon and phosphorus), litter decomposition and primary productivity; pyramids of number, biomass and energy; ecological succession types.

Biodiversity and its conservation: Levels of biodiversity; threats to biodiversity; mega-biodiversity countries and biodiversity hotspots; IUCN threat categories; in situ and ex situ methods of biodiversity conservation. Environmental issues: Causes and consequences of air and water pollution and their control; solid waste management; agro-chemicals and their effect; greenhouse effect and global warming; stratospheric ozone layer depletion causes and consequences.

UNIT- 7: BIOLOGY AND HUMAN WELFARE

Plant breeding: Introduction, steps in plant breeding and application of plant breeding. Tissue culture: Cellular totipotency; technique and application of tissue culture. Microbes in human welfare: Role of microbes in food processing; industrial production; sewage treatment; energy production (biogas); bio-pesticides and bio-fertilizers Elementary idea of Genetically Modified Organisms (GMOs); bio-piracy and patents.

b. ZOOLOGY

UNIT -8: DIVERSITY IN THE LIVING WORLD.

Co Characteristic features of living organisms Salient features of different animal phyla (non-chordates upto phylum level, chordates upto class level). National parks of J&K State:- Dachigam National Park, Hemis High altitude National Park and Kishtwar High altitude National Park.

UNIT-9: HISTOLOGY & MORPHOLOGY

Animal Tissues:- Epithelial, Connective, Muscular and Nervous Elementary knowledge on morphology & anatomy of Frog, Earthworm and Cockroach.

UNIT-10: CELL-STRUCTURE & FUNCTION

Modern cell theory, Prokaryotic and eukaryotic cells, cell wall, cell membrane structure & function (fluid mosaic model), cell organelles (Plastids, Mitochondria, Endoplasmic reticulum, Golgi bodies/ dictyosomes, riobosomes, lysosomes, nucleus, vacuoles, centrioles, cilia & flagella). Cell division: Cell cycle, Mitosis and Meiosis Bio molecules: Structure and function of carbohydrates, proteins, lipids and nucleic acids, primary and secondary metabolites, metabolism Enzymes: Types, properties functions and factors controlling enzyme activity.

UNIT-11: HUMAN PHYSIOLOGY

Alimentary canal, digestion and absorption of food, disorders of digestive system (jaundice, vomiting, diarrhea, constipation, indigestion etc.). Respiratory organs, mechanism of breathing, respiratory volumes and capacities, transport of gases (oxygen and carbon dioxide), disorders of respiratory system (asthma, emphysema, fibrosis etc.) Circulatory system:- Blood & lymph and their functions, blood groups, coagulation of blood, human heart, cardiac cycle, ECG, double circulation, ~ disorders of circulatory system. (hypertension, coronary artery disease, angina, heart failure) Human excretory system:- urine formation, functions of tubules, mechanism of concentration of the

filtrate, regulation of kidney function, micturition, role of other organs in excretion (lungs, liver and skin), haemodialysis and peritoneal dialysis, disorders of the excretory system (kidney failure, glomerulonephritis, renal calculi), Types of movement (amoeboid, ciliary and muscular), different types of muscles, structure of contractile proteins (actin and myosin), mechanism of muscle contraction, joints, disorders of muscular and skeletal system (Myasthenia gravis, muscular dystrophy, tetany, arthritis, gout, osteoporosis) Human nervous system:- neuron as a structural and functional unit of nervous system, generation and conduction of nerve impulse, transmission of impulses, reflex action and reflex arc, structure and functioning of the sense organs (eye and ear), Endocrine glands, Mechanism of hormone action, hormones of heart, kidney and gastrointestinal tract.

UNIT-12: REPRODUCTION

Asexual reproduction:- Characteristics and types of asexual reproduction (binary fission, sporulation, budding, gemmules, fragmentation, regeneration) Human reproduction:- male and female reproductive system, microscopic anatomy of testis and ovary, spermatogenesis and oogenesis, menstrual cycle, fertilization, embryo development upto blastocyst formation, implantation, pregnancy and placenta formation, parturition and lactation, Reproductive health:- need for reproductive health, sexually transmitted diseases and their control and prevention, birth control, (its need and methods), contraception and medical termination of pregnancy (MPT), amniocentesis, infertility and associated reproductive technologies (IVF,ZIFT,GIFT).

UNIT-13: GENETICS AND EVOLUTION

Sex determination in humans, birds and honey bee. Inheritance pattern of Mendelian disorders in humans (colourblindness, haemophilia, cystic fibrosis, sickle-cell anemia, phenylketonuria, thalassemia). Chromosomal disorders in humans:- Down's syndrome, Turner's syndrome and Klinefelter's syndrome. Genome and human genome project. DNA fingerprinting. Origin of life, theories and evidences for evolution with special reference to Darwinian theory, and Modern synthetic theory, Hardy-Weinberg principle, Adaptive radiation.

UNIT-14: BIOLOGY AND HUMAN WELFARE

Health and Diseases:- basic concepts of immunology, vaccines, common diseases in human beings (their causative agents, symptoms and prevention and control) with reference to typhoid, hepatitis, malaria, filariasis, bubonic plague, ascariasis, common cold, amoebiasis and ring worm, Detailed account of diseases like cancer and HIV/AIDS. Insects and human welfare:- Silk, honey and lac producing insects, their life-cycle and usefulness of their products. Adolescence and drug and alcohol abuse (effects of drug/ alcohol abuse, prevention and control).

UNIT 15: BIOTECHNOLOGY AND ITS APPLICATIONS

Genetic engineering (recombinant DNA technology), cloning. Biotechnological production of human insulin, vaccines and growth hormone. Gene therapy. Bio safety/ ethical issues regarding recombinant DNA technology

D. AGRICULTURE

UNIT-01: AGRONOMY 20 marks

Cultivation of common crops-wheat, paddy, cotton, jowar, bajra, maize, soybean, arhar, mustard, sunflower, pea, groundnut, gram, tobacco, barseem, potato and sugarcane under the following heads:

Recommended varieties and their main characteristics, suitable areas, seed rate, time and method of sowing, irrigation, fertilizer use, control of weeds, insect-pests and diseases, harvesting, processing and yield. Soils-origin and classification loam, silt, clay, sandy loam, etc.; physical and chemical properties; soil conservation. Use of fertilizers, essential nutrients- nitrogen, phosphorus and potassium uptake by different crops, organic and inorganic fertilizers and their effects on crops and soil, methods of using fertilizers, farmyard manure, composting, green manuring, study of organic and inorganic fertilizers/ manures. Pollution of soil, water and air in modern agriculture and remedial measures.

Irrigation and Drainage - water requirement of crops, measurement of water discharge, prevention of loss of water; quality of water; different methods of irrigation - flooding, basin method, border /strip method, sprinkler and drip irrigation - their advantages and limitations. Necessity for drainage, damage to soil and crops due to excess moisture, prevention of formation of acidic and alkaline soils and their management; natural calamities- floods and drought and their management.

UNIT-02 HORTICULTURE 10 marks

Study of following horticultural crops including recommended varieties and their main features, suitability for different regions, time and method of sowing, fertilizer use, irrigation, diseases and pests and their control.

Crops- cabbage, cauliflower, onion, garlic, cucurbits, bittergourd, bottlegourd, muskmelon, squash, ridgegourd; root crops-carrot, radish sweet potato, turnip; peas, tomato, brinjal, lady's finger, spices; fruit crops such as banana, apple, mango, litchi, citrus, guava, papaya, peach etc.

UNIT-03 AGRICULTURAL ENGINEERING 10 marks

Type of iron and steel, wood, plastic and tin used in agricultural implements and their forms & properties. Study of different types of ploughs-their merits and demerits; mechanical devices such as cultivator, harrow, sprayer, seed drill, threshers etc. their management & cost, selection of prime movers, water lifting devices; discharge, command area, cost of different system; soil preparation, methods of ploughing, need for tillage, kinds of tillage, interculture, equipment for interculture.

Power transmission through belts, pulleys and gears, questions relating to number of teeth in gears according to speed and size of pulleys, hand operated chaff cutters, cane crusher etc., draught and its measurement.

UNIT-04 AGRICULTURAL ECONOMICS 10 marks

Introductory agricultural economics-meaning and scope, significance of agricultural economics in national planning. Production - meaning, factors of production such as land, labour, capital and management, properties of factor of production; law of returns; intensive and extensive agriculture; Exchange - meaning, types, advantages; types of markets, general price determination; money and credit; banks and their functions; principle of international trade, Distribution-meaning, rent, wages, interest and profit; Consumption -meaning, wants and their properties, law of diminishing marginal utility, law of demand, relative prices and standard of living; Cooperation - meaning, principles of cooperation, types of cooperative societies in agriculture, single purpose and multi-purpose cooperative societies, land development banks: Agriculture-place in Five Year Plans; statistics of agricultural production in the State; Major programmes of agricultural development.

UNIT-04 ANIMAL HUSBANDRY AND VETERINARY SCIENCE 10 marks

Study of major breeds of cows, buffaloes, goat, sheep and poultry; elementary physiology and anatomy of cows and bullocks; estimate of their age; characteristics of good milch cows and buffaloes, bulls and bullocks. Care and management of pregnant cow, during calving, newborn calves, young calves, milch cows; poultry management. Principles of feeding of various classes of livestock and poultry. Economic feeds for various classes of livestock and poultry. Clean milk production and maintenance of hygiene. Common medicines and vaccines used in treatment/prevention of animal diseases; handling of animals for treatment; castration. Operation flood, Milk and Milk products, Identification of Adult rated milk. Note: Questions from similar topics can also be included.

E. MATHEMATICS (06 marks each unit)

UNIT 1: SETS, RELATIONS AND FUNCTIONS

Sets and their representation, finite and infinite sets, empty set subsets, subset of real numbers especially intervals, power set, universal set. Venn diagram, union and intersection of sets. Difference of sets, Complement of a set. Ordered pairs, Cartesian product of sets, number of elements in the Cartesian product of two finite sets. Cartesian product of real with itself (upto $R \times R \times R$). Relation, Domain, co-domain and range of relation, types of relations, reflexive, symmetric, transitive and equivalence relations. Function as special kind of relation from one set to another, domain, co-domain and range of a function. One to one, onto functions. Real valued functions of the real variable, constant identity, polynomial, rational modulus signum and greatest integer functions with their graph. Sum, difference, product and quotients of functions. Composite of functions, inverse of a function, binary operations.

UNIT 2: COMPLEX NUMBER; LINEAR INEQUATION; LINEAR PROG

Complex number: Conjugate of a complex number, modulus and amplitude (argument) of a complex number, Argand's plane and polar representation of complex numbers, algebraic properties of complex numbers. Fundamental theorem of algebra, solution of Quadratic equation in the complex number system. Square root of a complex number. Linear inequation: Algebraic solution of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities of two variables. Linear programming: Introduction, definition of related terminology such as constraints, objective function, optimization, different type of linear programming problem (L.P), mathematical formulation of L.P problem, graphical method of solution for problems in two variables, feasible and infeasible regions, feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

UNIT 3: SEQUENCE AND SERIES, PERMUTATION AND COMBINATION

Sequence and series: Arithmetic progression (A.P), arithmetic mean (A.M), nth term, sum to n-terms of an A.P, Geometric progression (G.P), Geometric Mean (G.M), nth term, sum to n-terms and sum to infinity of a G.P. Relation between A.M and G.M. Sum to n terms of 2^3 . Permutation and combination:

Fundamental principle of counting, factorial n., permutations $P(n,r)$ and combinations $C(n,r)$, derivation of formulae and their connections, simple applications. Mathematical Induction and Binomial Theorem: The principle of

mathematical induction and simple applications. Binomial theorem, statement and proof of Binomial theorem for positive integral power. Pascal's triangle, general and middle terms in the Binomial expansion, simple application.

UNIT 4: TRIGONOMETRIC AND INVERSE TRIGONOMETRY FUNCTIONS

Positive and negative angles, measuring angles in radians and in degrees, Conversion from one measure to another. Definition of trigonometric functions with the help of unit circle, identity $\sin^2x + \cos^2x = 1$ for all Sign of x , Trigonometric functions and their graphs. Expression of $\sin \pm \cos \pm$ in terms of $\sin x$, $\sin y$, $\cos x$ and $\cos y$.

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 , \cos . Sine and Cosine formulae and their simple applications. Inverse trigonometric functions, definition, range, domain, principal value branches. Graphs of inverse trigonometric functions, elementary properties of inverse trigonometric functions

UNIT 5: MATRICES AND DETERMINANTS

Matrices, concepts, notation, order, equality, types of matrices, Zero matrix, transpose of matrix, Symmetric and skew symmetric matrices. Addition, multiplication, scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication of matrices. Non-cumulative of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (order 2×2). Concept of elementary row and column operation, Invertible matrices and uniqueness of inverse, if it exists. (Matrices with real entries). Determinants of square matrix (upto 3×3 matrices) properties of determinants, minors, cofactors and applications of determinants in finding 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 using inverse of a matrix. Cramer's Rule and its applications.

UNIT 6: LIMIT, CONTINUITY AND DIFFERENTIATION

Concept of limit of a function. Theorems on Limits, Evaluation of limits using standard results Continuity of a function at a point. Continuity of Sum, product and quotient of functions. Derivative: definition of a derivative of a function, geometrical interpretation of the derivative.

- Derivative of sum, difference, product and quotient of two or more functions.
- Derivative of algebraic and composite functions.
- Derivative of trigonometric and inverse trigonometric functions.
- Chain rule, derivative of implicit functions.
- Derivative of logarithmic and exponential functions.
- Logarithmic differentiation.
- Derivative of functions expressed in parametric forms.
- Second order derivatives.
- Rolle's and Lagrange's Mean Value Theorem and their geometrical interpretation and their simple applications.
- Chain Rule, derivative of implicit functions.

Application of Derivative: rate of change, increasing and decreasing functions, tangents and normals, approximation, maxima and minima (first derivative and second derivative test). Simple problems.

UNIT 7: INTEGRATION AND DIFFERENTIAL

Integration as inverse process of differentiation. Integration of variety of functions by Substitution, by parts, by partial fractions. Simple integrals. Definite integrals as a Limit of a sum. Fundamental Theorem of calculus. Basic properties of definite integrals Evaluation of definite integrals. Application of integrals: Application in finding the area under simple curves, especially lines. Areas of circles, parabolas and ellipses (in standard form) Area under the curve $y = \sin x$, $y = \cos x$, area between the above two curves. Differential Equations: Definition, order and degree of a differential equation. General and particular solutions of a differential equation. Formation of a differential equation whose general solution is given. Solution of differentiation equation by method of separation of variables. Solution of Homogeneous differential equation of first order and first degree. Solution of linear differential equation of the type:

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ alone and}$$

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

UNIT 8: STRAIGHT LINES AND CONIC SECTIONS

Distance between two points, section, slope of a line, angle between two lines, various forms of equations of lines, point-slope form, intercept form, two point form, and normal form. General equation of a line, distance of a point from a line. Conic Section: Sections of a cone, circles, parabola, ellipse, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of conic section. Standard equation of a circle, parabola, ellipse, and hyperbola and their simple properties.

UNIT 9: STATISTICS AND PROBABILITY

Measure of dispersion, mean, deviation, variance and standard deviation of ungrouped/ grouped data. Analysis of frequency distribution with equal means but different variances. Random Experiment: outcome, sample spaces. Events: Mutually exclusive events. Axiomatic (set theoretic) probability, probability of an event, probability of “Not” and “Or” events. Multiplication theorem on probability, conditional probability, independent events, total probability, Baye’s theorem, random variable and its probability, distribution, mean and variance of a random variable. Repeated independent (Bernouli) trials and Binomial distribution.

UNIT 10: VECTORS AND THREE DIMENSIONAL GEOMETRY

Vectors and scalars, magnitude and direction of a vector Direction Cosines and ratios of a vector. Types of vector, equal, zero, unit, parallel and collinear vectors. Position vector of a point, negative of a vector, components of a vector, addition of vectors, Scalar multiplication, position vector of a point dividing a line segment in a given ratio.

SYLLABI FOR SKUAST-JAMMU ENTRANCE EXAMINATION FOR ADMISSION TO MASTER DEGREE PROGRAMMES

Code 01: Major Subject Group- Basic Sciences

1. General Agriculture

30 marks

Importance of agriculture in national economy; basic principles of crop production; cultivation of rice, maize, wheat, rapeseed, mustard, chickpea, pigeon-pea, tomato, and mango. Major soils of India; role of NPK and their deficiency symptoms. General structure and function of cell organelles; mitosis and meiosis; Mendelian genetics. Elementary knowledge of growth, development, photosynthesis, respiration and transpiration; Elements of economic botany. General structure and function of carbohydrates, proteins, nucleic acids, enzymes and vitamins. Major pests and diseases of rice, wheat, cotton, chickpea, sugarcane and their management. Organic farming; bio-fertilizers; bio-pesticides. Recombinant DNA technology; transgenic crops. Important rural development programmes in India; organizational set up of agricultural research, education and extension in India. Elements of statistics.

2: Biochemistry

30 marks

UNIT-I: Importance of biochemistry in agriculture. Acid-base concept and buffers; pH. Classification, structure and metabolic functions of carbohydrates, lipids and proteins. Structure and function of nucleic acids. Enzymes, nomenclature, mechanism of action enzyme kinetic purification vitamins and minerals as coenzymes and cofactors. Metabolic pathways: glycolysis, TCA cycle, fatty acid oxidation, triglyceride biosynthesis. Electron transport chain; ATP formation. Photosynthesis: C-3, C-4 and CAM pathways. Nitrate assimilation; biological nitrogen fixation. Secondary metabolites, pathways and its role in biological sciences. DNA replication, transcription and translation; genetic code; operon concept Centrifugation, spectrophotometric, electrophoresis and chromatographic techniques, concept and application of Radio Isotopes in Biological Sciences.

3: Biotechnology

30 marks

Characteristics of prokaryotic and eukaryotic organisms; differences between fungi, bacteria, mycoplasmas and viruses. Physical and chemical basis of heredity; cell organelles, chromosome structure. DNA replication, transcription and translation; genetic code; operon concept. Genetic engineering; restriction enzymes; vectors; gene cloning; gene transfer. Molecular markers and their applications. Basic techniques of cell, tissue and organ culture and their implications. General applications of biotechnology. Molecular and immunological techniques. Concept of bioinformatics, genomics and proteomics.

4- Genetics & Plant Breeding

60 marks

UNIT-I: Mendel’s laws of inheritance and exceptions to the laws. Types of gene interactions, Pleiotropism- Penetrance and expressivity. Multiple alleles, Quantitative traits and qualitative traits and differences between

them, Multiple factor hypothesis. Ultra structure of cell and cell organelles and their functions. Study of chromosome structure, morphology, number and types-karyotype and ideogram. Numerical chromosomal aberrations (Polyploidy) . Structural chromosomal aberrations. Mitosis and meiosis-their significance and differences between them. DNA and its structure, function, types, modes of replication and repair. Cytoplasmic inheritance-its characteristic features and differences between chromosomal and cytoplasmic inheritance. Mutation- its characteristic features, methods of inducing mutations and CIB technique. Gene expression and differential gene activation. Lac operon and fine structure of gene.

Unit -II: Aims and objectives of Plant Breeding; Modes of reproduction, Sexual, Asexual, Apomixis and their classification, significance in plant breeding. Modes of pollination, genetic consequences, differences between self and cross-pollinated crops. Methods of breeding – introduction and acclimatization. Selection . Mass selection Johannson’s pure line theory, genetic basis, pure line selection. Hybridization – Aims and objectives, types of hybridization. Methods of handling of segregating generations – pedigree method, bulk method, back cross method and various modified methods. Incompatibility and male sterility and their utilization in crop improvement. Heterosis, inbreeding depression, various theories of Heterosis, exploitation of hybrid vigour-development of inbred lines, single cross and double cross hybrids. Population improvement programmes, recurrent selection, synthetics and composites. Methods of breeding for vegetative propagated crops. Clonal selection. Mutation breeding – Ploidy breeding. Wide hybridization, significance in crop improvement.

Unit-III: Chemical composition of seed. Seed dormancy, Seed germination, Male sterility, self-incompatibility and their role in hybrid seed production. Principles and methods of seed production of varieties and hybrids of cereals like wheat, paddy, sorghum, pearl millet and maize; pulses like chickpea, pigeon pea, green gram, black gram, soybean and cowpea; oilseeds like groundnut, brassica, sesame, sunflower and castor. Different classes of seed (Breeders seed, foundation seed, certified seed, etc..) Seed Certification Schemes, concepts and procedures. Seed Testing concepts and objectives, its role in seed quality control. Seed sampling, seed moisture testing, purity analysis, germination testing, tolerance tests and equipment. Testing for genuineness of varieties – principles and methods based on seed, seedling and plant characters, biochemical techniques namely electrophoresis of proteins and iso-enzymes and DNA fingerprinting.

Code 02: Major Subject Group- Agricultural Sciences

1: General Agriculture

30 marks

Importance of agriculture in national economy; basic principles of crop production; cultivation of rice, maize, wheat, rapeseed, mustard, chickpea, pigeon-pea, tomato, and mango. Major soils of India; role of NPK and their deficiency symptoms. General structure and function of cell organelles; mitosis and meiosis; Mendelian genetics. Elementary knowledge of growth, development, photosynthesis, respiration and transpiration; Elements of economic botany. General structure and function of carbohydrates, proteins, nucleic acids, enzymes and vitamins. Major pests and diseases of rice, wheat, cotton, chickpea, sugarcane and their management. Organic farming; bio-fertilizers; bio-pesticides. Recombinant DNA technology; transgenic crops. Important rural development programmes in India; organizational set up of agricultural research, education and extension in India. Elements of statistics.

2: Agronomy

12 marks

UNIT-I: Principles of Agronomy, Crop ecology and geography and Agricultural Meteorology: Agronomy-meaning and scope, National & International agricultural research institutes in India, Agro climatic zone of India , Tillage, crop stand establishment and planting geometry and their effect on crop, Physiological limits of crop yield and variability in relation to ecological optima, organic farming , Precision farming , integrated farming system, principles of field experimentation. Principles of crop ecology and crop adaptation, crop plants, Greenhouse effect, climatic factors and their effect on plant processes and crop productivity. Atmospheric temperature and global warming. Crops and atmospheric humidity, weather forecasting, sustainable agriculture parameter and indicators, conservation agriculture.

UNIT-II: Field crops: Origin, distribution, economic importance, soil and climatic requirement, varieties, cultural practices and yield of cereals (rice , wheat, maize, etc), pulses (chickpea, lentil, peas, Pigeon pea, mungbean, urdbean), oilseeds (rapeseed & mustard, sunflower, sugarcane, fodder & forage crops)sorghum, maize, napier , berseem, Lucerne, oats, medicinal & aromatic plants and commercial crops.

UNIT-III: Weed management: Principles of weed management, classification, biology and ecology of weeds, crop weed competition and allelopathy, concepts and methods of weed control, integrated weed management, Classification, formulations, selectivity and resistance of herbicides, Herbicide persistence in soil and plants, Application methods and equipments, Weed management in field crops.

UNIT-IV: Water management: Principles of irrigation, water resources and irrigation development in India , water and irrigation requirements, concepts and approaches of irrigation scheduling , methods of irrigation, Measurement of irrigation water, application, distribution and use efficiencies, conjunctive use of water, irrigation water quality and its management , water management in major field, crops (rice, wheat, maize , groundnut, sugarcane) Agricultural drainage.

UNIT-V: Dry land Agronomy: Characteristics of Dry land farming and delineation of Dry land tracts, constraints of Dry land farming in India, types of drought and their management, contingency crop planning and mild-season corrections for aberrant weather and its recycling. Watershed management.

3: Soil Science and Agricultural Chemistry

12 marks

UNIT-I: Soil as medium for plant growth, weathering of rocks and minerals, soil profile, soil -physical mineralogical and chemical nature. Biological properties and soil, calculations of porosity and bulk density. Soil air , Soil temperature its importance in plant growth. Soil-water plant relationship, Soil colloids-properties, structure of silicate clay minerals, sources of negative charges, properties, kaolinite , iolite, montmorillonite and vermiculite clay minerals, milli-equivalent concept, ion exchange capacity, buffering of soils. Problems soils-acid, saline and acid sulphate soils- their characteristics, formation, problems and management. Irrigation, water quality. Waterlogged soils.

UNIT-II: Essentiality criteria for plant nutrition, mechanism for movement and uptake of ions in soils and plants, Forms of nutrients in soil, deficiency symptoms in plants, luxury consumption of K nutrient, nutrient interactions and chelated micronutrients. Soil fertility, evaluation and management for plant growth, soil testing and fertilizer recommendations. Soil, soil survey-type, objectives, uses, land capability classifications. Remote sensing and its application in agriculture. SIS, GIS and GPS, basic features and uses in agriculture, Elementary concepts of radio isotopes and uses in agriculture. Soil micro-organisms, classifications and their roles. Organic matter decomposition, C:N ratios, mineralization and immobilization processes, humus, role of organic matter in soil quality. Soil erosion, types and control measures. Fertilizers and manures-classifications, NPK fertilizers, their reactions in soils, green manuring , recycling of organic wastes, composting . Soil and water pollution-sources, brief idea about different pollutants in soils and their managements.

4: Fruit Science

12 marks

UNIT-I: Definition and importance of horticulture, Layout and establishment of orchards; propagation methods & use of root stocks, pruning and training methods, Use of growth regulators in fruit production, High density planting, advantages of HDP and tree vigor control, Assessment of requirement of irrigation water & its methods: merits and demerits, methods of application and fertigation for important fruit crops, studies on flower & fruit drop and its control, Studies on post harvest management in major fruit crops climatic requirement and cultivation practices of fruits like mango, banana, citrus, guava, grape, litchi, spota, papaya , apple, pear, peach, pineapple, pomegranate, ber, fig, phalsa, Jack, cherry and plum; nutritive value of fruits and their role in human nutrition; basic physiology of ripening in fruits and their products; type of fruits and control of fungal and bacterial diseases; plant nutrients, deficiency symptoms of nutrients, manures and fertilizers, system of irrigation, management of important pests and diseases of fruits .

UNIT-II: Nursery management: Importance of commercial nurseries in India and its management/ planning, Use of controller structures, shade houses, poly houses in fruit cultivation and propagation, Micro- propagation of plants, aseptic cultures and disadvantages, Study of tools , accessories and other equipment necessary for nursery.

5: Food Science & Technology

12 marks

UNIT-I Importance of post harvest technology in horticulture crops. Maturity indices, harvesting and post harvest handling of fruits and vegetables. Pre-harvest factors affecting quality on post harvest life of fruits and vegetables. Factors responsible for deterioration of harvested fruits and vegetables. Methods of storage-pre-cooling, pre-storage treatments, low temperature storage, controlled atmospheric storage, hypobaric storage, irradiation and low cost storage structure. Various methods of packing, packaging material and transport. Types of containers, cushioning material, vacuum packing, poly shrink packing, specific packing for export of mango, banana, grapes etc.

UNIT-II Importance and scope of fruits and vegetables preservation in India. Principles of preservations by heat, low temperature, chemical and fermentations. Preservation through canning, freezing, dehydration, drying, ultraviolet and ionizing radiations. Preparation of jam, jellies, marmalades, candies, crystallized and glazed fruits, preserve, chutneys, pickles, ketchup, sauce, puree, syrups, juices, squashes and cordials. Spoilage of canned products-biochemical, enzymatic and microbial spoilage. Preservatives, colors-permitted and prohibited in India.

6: Vegetables Sciences

12 marks

UNIT:-I Origin & Importance of vegetables in human diet; Vegetable Gardens; Classification of Vegetables;

Vegetables regions and their climatic requirements; Seed treatment; Preparation of germination media; Containers and growing of nurseries of different vegetables; Hardening of seedlings; Different methods of fertilizer application; Different irrigation & weed management practices in vegetable crops.

UNIT-II: Package of Practices for various fruit vegetables (Tomato, Brinjal, Chilli & Okra); Cucurbitaceous vegetables(Melons, Cucumber & Gourds) ; Cole crops (Cauliflower, Cabbage & Knol-Khol); Bulb Crops (Onion& Garlic); Leguminous crops (Peas & Beans); Root Crops (Carrot, Radish, Turnip & Beetroot) tuber crops (Sweet Potato, Colocasia, Tapioca & Yam), Leafy vegetables (Spinach & fenugreek); Perennial Vegetables (Drum stick, Coccinia & Curry leaf)

UNIT-III: Introduction ,history, definition & world scenario of protected cultivation ; Green House effect; Uses of Green Houses; Status & scope of green house technology in India ; Planning & Designing for green house – Site selection , green house orientation; Plan layout ; Green house utilities-Water electricity etc; Type of green houses-classification based on the shape, material utility and covering material; Consideration of greenhouse establishment

; Materials for green house construction ; Management of green house – Temperature, Light , Relative Humidity, Ventilation, Carbon dioxide, Irrigation & Nutrition.; Methods of green house cooling; Methods of ventilation-Natural & forced Ventilation ; Green house Heating – Heating Systems heat distribution & heat Conservation practices; Nutrient film techniques (NFT)/ hydroponics; Detailed production technology of vegetables – tomato, capsicum ,lettuce & cucumber, under protected conditions ; Marketing of green house crops; Major diseases & insect pests of green house crops & their management .

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UNIT:-IV Scope & importance of vegetables seed industry in India; Different categories of seed; Techniques of seed

production:-Annual & biennial habits with reference to seed production in different vegetables; Seed harvesting, curing, extraction, cleaning, drying, grading, packing & storage; Viability maintenance; Minimum seed germination standards for vegetable crops ; Seed certification and seed act.

7: Floriculture & Landscape Architecture

12 marks

UNIT-I: History and Principles of landscaping ; Characteristics of formal & informal gardens ; Cultivation & landscape utilization of important trees, shrubs, climbers, ground covers, potted and shade loving plants; Principles and practices of lawn management, principles of floriculture; Importance & planning of ornamental Garden; Types & styles of ornamental gardens.

UNIT-II: Regulation of commercial flowers, Post harvest management; Oil extraction techniques in commercial flowers; Dry flower arrangements , Making of greetings ; Flower dyeing ; Practicing the art of bonsai-wiring, selection of plants and training the bonsai plants; Constructed features- greenhouse, conservatory design; Economics of commercial flowers.

Unit:-III Production technology of Rose, Jasmine , Chrysanthemum, Gladiolus , Marigold, Tuberose, Liliun, Gerbera, Dahlia, Carnation , Anthurium & Orchids both under open and green house conditions ; Pot culture; Cacti and Succulents; Scope & importance of flower seed industry in India; Seed harvesting, curing, extraction, cleaning, drying, grading, packing & storage of flower crops; Minimum seed germination standards for flower crops .

8: Plant Pathology

12 marks

UNIT-I: Pesticides- History, Production and Consumption of pesticides in India and world., Introduction-Important plant pathogenic organisms- different groups- fungi, bacteria, fastidious vesicular bacteria, phytoplasmas, spiroplasmas, viruses, virioids, algae, protozoa and phanerogamic parasites with examples of diseases caused by them. Characteristics of prokaryotic and eukaryotic organisms, integrated diseases management; sterilization, disinfection and pasteurization; Koch;s postulates; etiological agents of rusts, smuts, powdery/downy mildews, wilts, yellows, mosaic, necrosis, enations, blights and witchesbrooms; pH , buffer, vitamins, Major pests and diseases of major field crops like rice, wheat, Maize, rapeseed mustard, pulses, vegetable/fruit crops, chickpea, and their management.

UNIT-II: Microflora of Rhizosphere and Phyllosphere ,microbes in composting Microbiology of water and food, Importance of stored grain pests, types of damage of stored product insects. Application of biotechnology in plant disease management – Importance, production of pathogen free plants through tissue culture techniques. Development of disease resistant transgenic plants through gene cloning. Importance of Mushrooms morphology and types of cultivated Mushrooms. Disease and pests of Mushroom and their management. Post harvest handling of Mushrooms.

9: Entomology

12 marks

UNIT-I: Classification of animal kingdom up to class; distinguishing characters up to orders in class general organization of an insect external morphology; metamorphosis and moulting; different physiological systems; insect pests of agricultural and horticultural crops, and their stored/processed products, insect vectors of plant disease; pests of household, medical and veterinary importance and their control; useful and beneficial insects like honeybee, lac insect, silkworm and pollinators; important plant parasitic nematodes and their control; entomopathogenic nematodes, pest surveillance and sampling; basic principles of insect pest management-cultural, mechanical, physical, biological control (bio-control agents, techniques in biocontrol, biopesticides, microbial pesticides), host plant resistance, insecticidal (classification, mode of action, formulations), quarantine, regulatory and other novel techniques; plant protection equipments; safety measures in handling of pesticides; biotechnological approaches in IPM.

10: Agricultural Economics

12 marks

UNIT-I: Elementary principles of economics importance of Agriculture/Forestry/ livestock in national economy. Theory of consumer behavior, theory of demand, elasticity of demand, indifference curve analysis, theory of firm, cost curves, theory of supply, price determination , market classification, concept of macroeconomics, money and banking, national income. Agricultural marketing-role, practice , institutions, cooperatives, capital formation in agriculture agrarian reforms, globalization, WTO & its impact on Indian agriculture.

11: Agricultural Extension Education

12 marks

UNIT-I: Education and their characteristics. Teaching-Learning process Extension Education and Agricultural Extension Concepts, Objectives and Principles. Sociology and Rural Sociology and its Classification. Motivation and its role. Social stratification and its form. Social Institutions and its role — and role of Social change - Classification, Role of a leader, Different methods Training learning processes and Educational Psychology.

UNIT-II: Rural development and developmental programmes of pre and post independence era , community development Programme _ National Extension service and Panchayati Raj system types, powers and functions. Agricultural Development Programmes –Entrepreneur behaviour, Infrastructure and Policy support for entrepreneurship forecasting market demand, sustainability of enterprise. Technical Appraisal.

UNIT-III: Communication Extension Programme Planning Project, Importance, Principles and Steps in Programme Development process, Monitoring and Evaluation of Extension Programmes Extension Teaching methods, Result Demonstration, Field trials Group contact methods and Field Trips Symposium, Panel, Debate, Forum, Buzz group, Workshop, Brain Storming, Seminar and Conference, Mass contact Methods Merits & Demerits. Factors influencing in selection of Extension Teaching Methods and Combination (Media Mix) of teaching methods. Innovative Information sources- Internet, Cyber Cafes, Video and Tele conferences, Kisan Call centers, Consultancy clinics. Agricultural and Journalism innovation. Models of adoption process, Innovation – Decision process – Elements, Adopter categories and their characteristics, factors influencing adoption process.

Code 03: Major Subject Group- Statistics

1: General Agriculture

30 marks

Importance of agriculture in national economy; basic principles of crop production; cultivation of rice, maize, wheat, rapeseed, mustard, chickpea, pigeon-pea, tomato, and mango. Major soils of India; role of NPK and their deficiency symptoms. General structure and function of cell organelles; mitosis and meiosis; Mendelian genetics. Elementary knowledge of growth, development, photosynthesis, respiration and transpiration; Elements of economic botany. General structure and function of carbohydrates, proteins, nucleic acids, enzymes and vitamins. Major pests and diseases of rice, wheat, cotton, chickpea, sugarcane and their management. Organic farming; bio-fertilizers; biopesticides. Recombinant DNA technology; transgenic crops. Important rural development programmes in India; organizational set up of agricultural research, education and extension in India. Elements of statistics.

2: Statistics

120 marks

UNIT-I: Mathematics: Real and complex numbers; polynomial and roots; de Moivre's theorem and its applications. Elements of set theory-De Morgan's laws; vector space, linear independence , orthogonality;

matrices addition and multiplication, rank of matrix , determinants, inverse of matrix ,solution of a system of linear equations, characteristic roots and vectors; convergence of infinite sequences and infinite series-tests for convergence, absolute convergence ; co-ordinate geometry in two dimensions-line, circle, parabola, ellipse and hyperbola. Differential calculus: limits, differentiation of function of a single variable; Tylor's and Maclaurin's theorem, composite functions, total derivatives, derivative of an implicit function, change of variables, Jacobians. Integral calculus; integration by simple methods, standard forms, simple definite integrals, double integrals, change of order of integration, Gamma and Beta functions, application of double integrals to find area. Ordinary differential equations: differential equations of first order, Exact and Bernoullis's differential equations, equations reducible to exact form by integrating factors, equations of first order and higher degree, Clairaut's equation, methods of finding complementary functions and particular integrals. Calculus of finite differences, interpolation; numerical differentiation and integration, difference equations; solution of simple non-linear equations by numerical methods like Newton method.

UNIT-II: Introduction: Statistics-definition , use and limitations; Frequency Distribution and Curves; Measures of Central Tendency : Arithmetic mean; Geometric mean, Harmonic mean, Median, Mode; measures of Dispersion: Range , Mean deviation, Quartile deviation, Variance and Coefficient of Variation, Probability: Definition and concepts , law of addition and multiplication, conditional probability, Bayes' theorem; Binomial, multinomial, Poisson and normal distribution; Introduction to sampling: Random sampling; standard Error; Tests of Significance-Types of Errors, Null Hypothesis, Level of Significance-Testing of hypothesis; Large sample Test-SND test for Means, single sample and two samples; Student's t-test for Single Sample, Two Samples and Paired t test. F test; Chi-Square Test for goodness of fit and independence of attributes; Correlation and Regression and associated tests of significance. Experimental Designs: basic principles, Analysis of variance, Completely Randomized Design (CRD), Randomized Block Design (RBD).

Code 04: Major Subject Group - Forestry

1: General Agriculture

30 marks

Importance of agriculture in national economy; basic principles of crop production; cultivation of rice, maize, wheat, rapeseed, mustard, chickpea, pigeon-pea, tomato, and mango. Major soils of India; role of NPK and their deficiency symptoms. General structure and function of cell organelles; mitosis and meiosis; Mendelian genetics. Elementary knowledge of growth, development, photosynthesis, respiration and transpiration; Elements of economic botany. General structure and function of carbohydrates, proteins, nucleic acids, enzymes and vitamins. Major pests and diseases of rice, wheat, cotton, chickpea, sugarcane and their management. Organic farming; bio-fertilizers; biopesticides. Recombinant DNA technology; transgenic crops. Important rural development programmes in India; organizational set up of agricultural research, education and extension in India. Elements of statistics.

2: Forestry

90 marks

UNIT-I: Forest-importance, types, classification; ecosystem , biotic and abiotic components; ecological succession and climax; nursery and planting techniques; social forestry , farm forestry, urban forestry , community forestry; forest mensuration, forest management; silvicultural practices, natural regeneration; man-made plantations, shifting cultivation, taungya; dendrology, hardwoods, softwoods, pulp woods, fuel woods, multipurpose tree species; wasteland management. Agroforestry- importance and classification; forest soils, classification and conservation, watershed management; tree improvement- forest genetics and biotechnology; tree seed technology; rangelands, wildlife- importance, abuse, depletion, management; major and minor forest products including medicinal and aromatic plants; forest inventory, aerial photo interpretation and remote sensing; forest depletion and degradation – importance and impact on environment; global warming, role of forests and trees in climate mitigation; tree diseases, wood decay and discolouration; tree pests, integrated pest and disease management; biological and chemical wood preservation; forest conservation, Indian forest policies, Indian forest act; forest engineering; forest economics, joint forest management and tribology.

3: Plant Pathology

15 marks

UNIT-I: Pesticides- History, Production and Consumption of pesticides in India and world., Introduction-Important plant pathogenic organisms- different groups- fungi, bacteria, fastidious vesicular bacteria, phytoplasmas, spiroplasmas, viruses, virioids, algae, protozoa and phanerogamic parasites with examples of diseases caused by them. Characteristics of prokaryotic and eukaryotic organisms, integrated diseases management; sterilization, disinfection and pasteurization; Koch;s postulates; etiological agents of rusts, smuts, powdery/downy mildews, wilts, yellows, mosaic, necrosis, enations, blights and witches brooms; pH , buffer, vitamins, Major pests and diseases of forest trees and their management.,

UNIT-II: Microflora of Rhizosphere and Phyllosphere ,microbes in composting Microbiology of water and food, Application of biotechnology in plant disease management – Importance, production of pathogen free plants through tissue culture techniques. Development of disease resistant transgenic plants through gene cloning.

4: Entomology

15 marks

UNIT-I: : Classification of animal kingdom up to class; distinguishing characters up to orders in class general organization of an insect external morphology; metamorphosis and moulting; different physiological systems; insect pests of agricultural and horticultural crops, and their stored/processed products, insect vectors of plant disease; pests of household, medical and veterinary importance and their control; useful and beneficial insects like honeybee, lac insect, silkworm and pollinators; important plant parasitic nematodes and their control; entomopathogenic nematodes, pest surveillance and sampling; basic principles of insect pest management-cultural, mechanical, physical, biological control (biocontrol agents, techniques in biocontrol, biopesticides, microbial pesticides), host plant resistance, insecticidal (classification, mode of action, formulations), quarantine, regulatory and other novel techniques; plant protection equipments; safety measures in handling of pesticides; biotechnological approaches in IPM.

Code 05: Major Subject Group- Sericulture

1: General Agriculture

30 marks

Importance of agriculture in national economy; basic principles of crop production; cultivation of rice, maize, wheat, rapeseed, mustard, chickpea, pigeon-pea, tomato, and mango. Major soils of India; role of NPK and their deficiency symptoms. General structure and function of cell organelles; mitosis and meiosis; Mendelian genetics. Elementary knowledge of growth, development, photosynthesis, respiration and transpiration; Elements of economic botany. General structure and function of carbohydrates, proteins, nucleic acids, enzymes and vitamins. Major pests and diseases of rice, wheat, cotton, chickpea, sugarcane and their management. Organic farming; bio-fertilizers; biopesticides. Recombinant DNA technology; transgenic crops. Important rural development programmes in India; organizational set up of agricultural research, education and extension in India. Elements of statistics.

2: Sericulture

90 marks

UNIT-I: Introduction and brief history of Sericulture, Morphology and systematic of silkworm, Anatomy of silkworm- reproductive system, digestive system, nervous system and silk gland, Life cycle of silkworm, Disinfection and disinfectants used in Sericulture, Eggs their incubation, brushing, Chawki rearing, late age rearing moulting, seriposition and post cocoon operations, Grainage operations, Silkworm rearing technology, Diseases and pests of silkworm, Different silkworms and their host plants, Taxonomy and systematic of mulberry, Propagation and cultivation practices, Application of manures and fertilizers, Training and pruning, Leaf quality and its importance, leaf harvesting and preservation, Chawki rearing garden, Diseases and pests of mulberry.

UNIT-II: Mendel's laws of inheritance and exceptions to the laws. Types of gene interactions, Pleiotropism-Penetrance and expressivity. Multiple alleles, Quantitative traits and qualitative traits and differences between them, Multiple factor hypothesis. Ultra structure of cell and cell organelles and their functions. Study of chromosome structure, morphology, number and types-karyotype and ideogram. Numerical chromosomal aberrations (Polyploidy) . Structural chromosomal aberrations. Mitosis and meiosis-their significance and differences between them. DNA and its structure, function, types, modes of replication and repair. Cytoplasmic inheritance-its characteristic features and differences between chromosomal and cytoplasmic inheritance. Mutation - its characteristic features, methods of inducing mutations and CIB technique. Gene expression and differential gene activation. Lac operon and fine structure of gene.

3: Plant Pathology

15 marks

UNIT-I: Pesticides- History, Production and Consumption of pesticides in India and world., Introduction-Important plant pathogenic organisms- different groups- fungi, bacteria, fastidious vesicular bacteria, phytoplasmas, spiroplasmas, viruses, virioids, algae, protozoa and phanerogamic parasites with examples of diseases caused by them. Characteristics of prokaryotic and eukaryotic organisms, integrated diseases management; sterilization, disinfection and pasteurization; Koch;s postulates; etiological agents of rusts, smuts, powdery/downy mildews, wilts, yellows, mosaic, necrosis, enations, blights and witches brooms; pH , buffer, vitamins, Major pests and diseases of forest trees and their management.,

UNIT-II: Microflora of Rhizosphere and Phyllosphere ,microbes in composting Microbiology of water and food, Application of biotechnology in plant disease management – Importance, production of pathogen free plants through tissue culture techniques. Development of disease resistant transgenic plants through gene cloning.

4: Entomology

15 marks

UNIT-I: : Classification of animal kingdom up to class; distinguishing characters up to orders in class general organization of an insect external morphology; metamorphosis and moulting; different physiological systems; insect pests of agricultural and horticultural crops, and their stored/processed products, insect vectors of plant disease; pests of household, medical and veterinary importance and their control; useful and beneficial insects like honeybee, lac insect, silkworm and pollinators; important plant parasitic nematodes and their control; entomopathogenic nematodes, pest surveillance and sampling; basic principles of insect pest management-cultural, mechanical, physical, biological control (bio control agents, techniques in bio control, bio pesticides, microbial pesticides), host plant resistance, insecticidal (classification, mode of action, formulations), quarantine, regulatory and other novel techniques; plant protection equipments; safety measures in handling of pesticides; biotechnological approaches in IPM.

Code 06: Major Subject Group- Veterinary Sciences

UNIT- 1. Veterinary Medicine

10 marks

Clinical examination and diagnosis, Etiology, epidemiology, symptoms, diagnosis, prognosis, treatment and control of diseases affecting different body systems of various species of domestic animals,. Deficiency diseases, metabolic diseases, metabolic disorders

UNIT- 2. Veterinary Surgery & Radiology

10 marks

Asepsis-antisepsis, management of shock, haemorrhage. Symptoms, diagnosis and management of wound, abscess, tumors, cyst, haematoma, necrosis, gangrene. Introduction to anaesthesia, preanaesthetics, local analgesia, General anaesthesia & anaesthetic agent (barbiturates, dissociative agents). Anaesthetic emergencies and their management. Interpreting X-ray films, Classification of radiographic lesions. Introduction to contrast radiography, radiation hazards and their prevention principles of ultrasonography. Sinusitis, pus in the sinus. Horn affection, irregular molars, shear mouth, sharp teeth, wave form mouth, step formed mouth dental tartar and dental caries, bishoping. Salivary, cysts, salivary fistula. Ear haematoma, chronic otorrhoea. Entropion, ectropion, conjunctivitis, glaucoma, keratitis, corneal ulcer, cataract, worm in the eye. Choke. Hernia. Pyloric stenosis, gastric torsion, ruminal impaction, traumatic reticulitis, diaphragmatic hernia, abomasal displacement, omasal impaction, intestinal obstruction, intussusceptions, rectal prolapse, rectal tear, hyderadenitis, atresia-ani et-recti et-coli. Urolithiasis. Surgical affections of udder and teat. Caesarean, spaying, castration. Lameness, definition, classification and diagnosis. Sweeny, bicipital bursitis, capped elbow, radial paralysis, hygroma of knee, contraction of digital flexors, splints, ringbone, quitter, side bone, navicular disease, pyramidal disease. Laminitis, sand crack. Canker, thrush and corn, Upward luxation of patella, stringhalt, bog spavin, spavin. DJD, intervertebral disc protrusion, hip dysplasia, fracture and dislocation, principles of physiotherapy.

UNIT- 3. Veterinary Anatomy

10 marks

Gross anatomy of bones, different joints of the animal body & their classification, muscles, heart & blood vessels, nervous system, body cavities, visceral organs and sense organs in principal domesticated animals and birds, biomechanics, structure of cell and its organelles, basic tissues of the body, different types of epithelium, histology of different body system, gametogenesis, fertilization, blastulation, gastrulation, development of uro-genital, digestive and cardiac systems.

UNIT- 4. Animal nutrition

10 marks

History of Animal nutrition ; proximate principles and fibre fractions, digestion and metabolism of carbohydrates, proteins and fats in ruminants and non-ruminants, energy partitioning in body, measures of protein quality, general functions of minerals and vitamins and associated disorder, classification of feedstuffs, Common anti-nutritional factors and unconventional feedstuffs, Hay and silage making, improvement of poor quality roughages, Nutritional disorder of livestock.

UNIT- 5. Veterinary Physiology

10 marks

Blood composition & functions. Haemostatis. Morphological characteristics of heart, conduction system, cardiac cycle. Electero- physiology of heart & regulation of cardiac functions. Haemodynamics, circulatory control & regional circulation. Functional morphology of nephrone, urine formation & concentration mechanism. Electrolyte & Water balance, acid-base balance. Structure and functions of skeletal & smooth muscle, properties, neuromuscular junction and transmission. Neuron structure, classification, synapse, receptors, properties of nerve fibres, reflexes, ANS, higher function of neuron. Structure & functions of monogastric & polygastric digestive system. Functional morphology of respiratory system. Transport of gases, control of respiration. Endocrine glands. Hormones & their functions. Male & female reproduction, in-vitro fertilization synchronization superovulation, cloning, sperm sexing. Lactation, mamogenesis, galatoposis, milk ejection, composition of milk, colostrums.

Growth & animal behaviour. Influence of environment of growth, production & reproduction. Thermoregulation & climatology.

UNIT- 6. Vety. Biochemistry

10 marks

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

UNIT- 7. Livestock Product Technology

10 marks

Structure, composition and nutritive value of milk, meat and egg, preservation and packaging of milk, meat and egg, processing of livestock products, legal standards of milk and meat products, sensory evaluation of livestock products, layout and management of abattoir, slaughtering techniques, ante mortem and post mortem examination, conversion of muscles to meat, utilization of glandular and non glandular by products, fraudulent substitution of meat and its recognition, grading and processing of wool

UNIT-8. Animal Genetics & Breeding

20 marks

History of Animal Breeding, classification of breeds, Economics characters of Livestock and poultry and their importance, Breeding/Selection techniques for optimal production, Selection: Response to selection and factor affecting it, Bases of selection individual, pedigree, family, sib, progeny and combined, Indirect selection and Multitrait selection, Classification of mating system, Inbreeding and out-breeding, Genetic and phenotypic consequence viz. Inbreeding depression, and heterosis, Systems of utilization of heterosis Selection for combining ability, Breeding methods for the improvement of dairy cattle and buffaloes crossbreeding, sine evaluation, field progeny testing, Open nucleus breeding system (ONBS), Sheep, goat, swine and poultry breeding programmes in the state and country . History of Genetics, Chromosome nos. And types in diff. Sp including poultry, Mitosis, Meiosis & Gametogenesis Overview of Medallion Principles, Modified Mendallion inheritance Mutation, Chromosome aberration & Cytoplasm Inheritance, Gene Interaction, Epistasis, Multiple alleles, Lethals, Sex limited, Sex linked , & Sex influenced traits, Linkage & Crossing Over, Gene concept- Classical and Molecular, Population Genetics, Genetic structure of population , Gene frequency, Genotype frequency, Hardy- Weinberg law d its application, Forces(Mutation, Migration, Selection & Drift) changing, Gene & genotype frequencies, Quantitative genetics, Nature & Properties, Values & Means-Pop mean, Average effect, Components of phenotypic & Genotypic variance, Concept of genotype and environmental interaction, Resemblance b/w relatives & heritability, Repeatability, genetic & phenotypic correlation.

UNIT- 9. Veterinary Pharmacology & Toxicology

10 marks

Source and nature of drugs, pharmacokinetics, drugs acting on different body systems. Antimicrobial agents-their mechanism, therapeutic indication, toxicity & resistance. Toxicity & treatment of importance metals, non-metals, poisonous plants, agro chemicals and mycotoxins.

UNIT- 10. Veterinary Pathology

10 marks

Introduction, history and scope of pathology. Predisposing factors, intrinsic and extrinsic factors. Disturbances of circulation / haemodynamic derangements. Pigment metabolism, pathological calcification/ossification. Degenerative changes. Inflammation, healing. Immunopathology, immune mediated tissue injury, hypersensitivity reactions. Genetic abnormalities. Disturbance in cell growth, neoplasms. Posmortem examination, histopathology, histochemistry. Histoenzymology, electron microscopy. Clinical laboratory examination of complete blood hemogram, serum enzymology, bone marrow examination, urine, skin scrapings stools, CSF and milk for pathological constituents and interpretation of results. Pathology of cardiovascular, haemopoietic, respiratory, digestive, urinary, genital, nervous and musculoskeletal systems, endocrine glands, organ of special senses i.e, eye, ear, skin, appendages. Pathology of bacterial, mycotic, viral, mycoplasmal, rickettsial, chlamydial and parasitic diseases. Diseases caused by prions. Pathology of nutritional deficiency disease. Etiopathology of common diseases of laboratory, wild and aquatic animals.

UNIT- 11. Livestock Production and Management

10 marks

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 and preservation of livestock products, method of processing and storage livestock products. International trade/WTO/IPR issues related to livestock products.

UNIT- 12. Veterinary Parasitology**10 marks**

General classification, morphology, life cycle, epidemiology, symptoms, pathogenesis, diagnosis, immunity and control of important parasitic diseases (Helminths, Protozoa and Arthropods) of Veterinary importance.

UNIT- 13. Veterinary Microbiology**(10 marks)**

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

UNIT- 14. Veterinary Public Health and Epidemiology**10 marks**

Zoonotic diseases through milk and meat, Zoo animal health. Epidemiology-aims, objectives, ecological concepts and applications.

UNIT- 15. Veterinary Extension Education**10 marks**

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 cooperative societies, animal husbandry development planning and programme, key village scheme, ICDD, Gosadan, Goshalla, role of gram panchayat in livestock development. Basics of statistics, data analysis and computational techniques.

Code 07: Major Subject Group- Agricultural Engineering

UNIT-I: Elementary Statistics and theory of probability, differential and integral calculus, linear algebra and Fourier series, differential equations, vector algebra & vector calculus, elementary numerical analysis. *Electric* motors: Types, performance, selection, Installation and maintenance, measuring instruments, fundamentals of computers, power distribution. **(20 marks)**

UNIT-II: Soil mechanics, soil classification, compaction & shear strength of soils, engineering mechanics, strength of materials **(10 marks)**

UNIT-III: Thermodynamic principles; fluid mechanics, theory of machines **(10 marks)**

UNIT-IV:- Importance of farm equipment and role of mechanization in enhancing productivity & profitability of Indian agriculture; analysis of forces, design and production of farm machinery and power units; mechanics of tillage & traction operation, repair and maintenance of farm machines and equipment, farm engines; tractors and power tillers; tractor stability and operators comfort; field capacity and cost analysis; test codes and procedure; safety and ergonomic principles. Role of energy in economic development; solar, wind and bio-energy; biogas plants & gasifiers; bio-fuels from biomass; collection, characterization and storage of biomass, solar cookers & solar refrigerators. **(40 marks)**

UNIT-V:- Biochemical and engineering properties of biological materials ;quality control & safety of raw and finished products. Principles, practices and equipments for drying, milling, separation and storage of agricultural produce and by-products; material handling equipment and operations; farmstead planning; heating & cooling load calculation; seed processing practices and equipments; food preservation methods and products development; refrigeration and air conditioning; cold stores; waste management, cost analysis& food processing plants layout, feasibility reports **(30 marks)**

UNIT-VI: Surveying and leveling; hydrology, water resources in India; efficiency in water use; irrigation system and equipment; water conveyances and associated efficiency; soil-plant-water relationship; estimation of evaporation and water requirements of crop; water harvesting and use, farm ponds and reservoirs, command area development, land use capability classification, ground water development, wells and pumping equipment, soil erosion and its control, land shaping and grading equipment and practices, hydraulic structures, drainage of irrigated and humid areas; salt balance and reclamation of saline and alkaline soils.

(40 marks)

Affidavit to Certify Sponsorship by NRI

I _____ son /daughter of _____
Resident of _____ Telephone No. _____
Fax number _____ e-mail _____, do
solemnly declare on oath as under:



1. That I migrated to _____ in the year _____ and my passport number is _____
2. That Mr./Ms/Mrs. _____ seeking admission to _____ course at Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu, Jammu, India, is related to me (nature of relationship) _____
3. That I do hereby sponsor Mr./Ms/Mrs. _____ for admission to above stated course.
4. That I undertake to make full payment of prescribed fee for the entire duration of the programme in the manner as may be fixed by the University.
5. That I make this affidavit to certify my sponsorship as NRI of Mr./Ms/Mrs. _____ for admission to above mentioned course.

I solemnly declare on oath that the above facts and particulars are true to the best of my knowledge and belief.

Deponent

Sworn to and appeared before me

at _____

on this day _____

Signature and seal of Solicitor

Note: To be sworn in and attested in the country of NRI's residence

SAMPLE OF OPTIONS FORM FOR COUNSELLING

Counselling Date: _____-2019 _____ S.No.

Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu

DISCIPLINE ALLOTMENT PREFERENCE FORMAT FOR SKUAST-J CET COUNSELLING-2018

Roll No.		Name			
Category		Marks		Rank	
Telephone/cell No.		Email ID			

OPTIONS/PREFERENCE FORMAT FOR ALLOTMENT OF DISCIPLINE

S.No.	Name of the Discipline where you desire admission (in order of preference)
1.	
2.	
3.	
4.	

I have deposited non-refundable counselling fee of Rs. 1000/-

Signature of the Candidate

Recommended provisionally for admission in Discipline _____

Signature of Counselling Committee Members.