

**Cost of Application Form:**  
General & OBC Candidates: 1500/-  
ST/SC Candidates: 750/-

**ENTRANCE TEST**  
**(PAT/PHT/PUT & B.N.Y.S. - 2015)**

**Information Booklet**



The Coordinator (PAT/PHT/PUT & B.N.Y.S. – 2015)  
**Dr. S R Rajasthan Ayurved University**  
**Office: Kadwad, Nagaur Road,**  
**JODHPUR (Raj.) - 342037.**  
**Examination Information**

**Date Of Examination:  
05 July, 2015 (Sunday)**

**Time: 08:00am to 11:00am.**

**Physics (50 Question),  
Zoology (50 Question)  
Chemistry (50 Question)  
Botany (50 Question)**

**IMPORTANT NOTE :-**

**All Candidates must submit their all original documents during counseling otherwise he/she will not be permitted for counseling.**

**Important Information**

**The Examination Centres will be located in the cities:  
Jodhpur, Jaipur, Udaipur, Ajmer, Bikaner, Kota, Sriganganagar & New Delhi.**

**SALIENT FEATURES**

1. One Paper Scheme.
2. Computerized examination cum application form.
3. Separate choice is not required for PAT/PHT/PUT & B.N.Y.S.
4. Answer sheets shall be OMR type, in triplicate and answers to be marked by blue / black ink ball point pen only.
5. Standard Answer key shall be sent to candidates with their mark sheets.

**Online Registration will be available from 14 MAY 2015 (Thursday) to 06 JUNE 2015 (Saturday) Upto 5.00 pm.** After 06 /06/2015 (Upto 5.00 pm.) Online Registration will not be accepted. No need to send filled copy of downloaded online registration form (hard copy) to this office.Keep it with you for further referance.

**Office Hours : 10.00 am to 5.00 pm on all working days.  
Phone No. : 0291-5153720/722/754  
Web Site: [www.raujodhpur.org](http://www.raujodhpur.org)  
Web Site: [www.dsrrau.org](http://www.dsrrau.org)**

# INSTRUCTION FOR ONLINE REGISTRATION FOR PAT/PHT/PUT & B.N.Y.S. -2015

1. This form is Online Registration for the admission to BAMS/BHMS/BUMS & B.N.Y.S. courses in the State of Rajasthan for the academic session 2015.
2. A Guideline for how to fill up the Online Registration, containing rules and procedure etc. and a Syllabus is also available online. This should be downloaded and retained by the candidate.
3. Examination Fees can only be deposited by the means of NEFT to university's Account no 65159807963 at **State Bank of Patiala, Karwar Branch** (IFSC code: STBP0001092), in any bank having NEFT facility. **Demand Draft will not be accepted.** Before depositing fee in to universit's account please take a print of Bank Challan from the web-site www.dsrrau.org. Fee will only be accepted if deposited with the challan printed from web-site www.dsrrau.org. Please ask the UTR no from the bank and mention it on challan before uploading the copy of challan. No application will be accepted without UTR number.
4. The candidate must upload his/her recent photographs during online registration.
5. Each candidate must clearly mention the category of reservation desired by him/her.
6. The candidates of any category out of Gen./SC/ST/ST-TADA/OBC/SBC, if applying for additional reservation as Physically Handicapped should mention this information on space provided for that and related certificates issued by the competent authority, should be provided at the time of counseling.
7. **Any candidate, once allowed to appear at PAT/PHT/PUT&B.N.Y.S.-2015, does not become directly eligible for admission to Ayurved, Homeopathy and Unani courses. The eligibility of successful candidates for admission in any category (General or Reserved) shall be finally ascertained at the time of admission. The decision of the Admission Board for the eligibility shall be final**
8. The Percentage disability should be more than 40% and duly certified by a medical board set up by the state.
9. The form is editable from 14 MAY 2015 to 06 JUNE 2015 (up to 5.00pm). University will not entertain any application for corrections in application form.
10. The student presently studying in Class XII and appearing at Senior Secondary Examination, 2015 can also apply for PAT/PHT/PUT&B.N.Y.S.- 2015. Such candidates shall be permitted provisionally to appear at PAT/PHT/PUT. & B.N.Y.S. They must submit their mark-sheet at the time of counseling.
11. The jurisdiction for legal cases arising out of PAT/PHT/PUT&B.N.Y.S.-2015 shall be limited to the Rajasthan High Court, Jodhpur only.
12. A candidate shall have to deposit the complete fee of the college, where he/she is admitted, within 7 days of the counseling irrespective of the token money deposited in the University at the time of counseling. Only after depositing this fee, the college shall confirm the admission.
13. Only after the confirmation of admission the token money shall be adjusted with the college fees by the concerned college. If the admission is not confirmed, the money shall be forfeited by the University.
14. If a candidate remains absent during any counseling he/she will be given IInd chance only if any counseling is arranged for vacant seats after exhausting the complete merit list. All such candidates will be again called according to merit list.
15. Any candidate, who has deposited complete fees in the concerned college after admission in counseling, shall be eligible to transfer according to merit in any subsequent counseling. He will have to produce original fee receipt of the concerned college.

# INSTRUCTIONS FOR THE EXAMINATION

1. The examination for PAT/PHT/PUT&B.N.Y.S.-2015 shall be held at the centers located in the following cities: Jodhpur, Jaipur, Udaipur, Ajmer, Bikaner, Kota, Sriganganagar & New Delhi.
2. The choice of three centers, in order of preference, should be clearly mentioned during the online registration. The centers shall be allotted on the first come first serve basis.
3. No guarantee is given for allotment of centers. The centre may be shifted in case number of candidates available at a center is less than 50. The decision of the Coordinator, Dr. S.R. Rajasthan Ayurved University, Jodhpur shall be final in this regard.
4. The centre once allotted shall not be changed in any case.
5. The candidate must ensure that both invigilators present in the examination hall put their signatures on the first answer sheet such that clear carbon impressions are made on other sheets. The candidates shall be allowed to take away the third answer sheet with him at the end of each examination.
6. Question paper shall be 200 Marks and shall contain 200 objective type questions. Each question shall have four options to answer, out of which only one shall be correct. Paper shall be divided as under:  
Physics (50 Question),  
Zoology (50 Question)  
Chemistry (50 Question)  
Botany (50 Question)
7. Mode of Marking: For each correct answer +1 marks shall be awarded and for each wrong answer -1/2 marks shall be deducted. Merit position shall be determined on the basis of total marks obtained paper.
8. The answer sheet shall be OMR Type in triplicate with carbon papers in between or may be self-carboned i.e. carbon less paper.
9. The OMR answer sheet shall be having four hollow circles in the row of each question number, in order of answers a, b, c or d. To answer a question, the candidate should fill in the appropriate hollow circle with blue or black ink ball point pen only.
10. The examination shall be held as per programme mentioned below:

Day & Date	Time	Subject
05 JULY 2015 (SUNDAY)	8:00 am to 11:00 am	Physics, Zoology, Chemistry, Botany

11. No part of the question booklet and OMR sheets should be removed from it. At the end of each test, the question booklet, the first and second answer sheets and the carbon papers, if any, must be handed over to the invigilators before leaving the examination room.
12. Candidates are not allowed to copy down any part of the question booklet, intended to be carried out of the examination room.
13. The question booklet shall not be subject to production before any court (civil or criminal), or before the candidate, or any body else on his/her behalf, or before any Internal or External Authority.
14. The result shall be announced in the form of roll numbers of candidates in order of merit.
15. The candidate securing equal marks shall be placed in one rank. Their merit within one rank shall be decided at the time of admission, on the basis of higher marks secured in 10+2 examination.
16. Admission Card & Mark sheet shall not be provided separately. Admission Card & Mark sheet can be downloaded from university's web site.
17. Any candidate who wish apply for re-evaluation of marks, he/she must submit his/her application along with downloaded marksheet within 10 days from the date of declaration of the Entrance Examination Result.  
Re-evaluation fees @ Rs. 300/- may be deposited in cash or by Demand Draft drawn in favour of the Registrar, Dr. S.R. Rajasthan Ayurved University, Jodhpur. No application received after due date will be entertained.
18. Any change of address of the candidate, should be immediately informed. All care shall be taken to entertain this information but no guarantee is given for this. However, candidates are still advised to make arrangements to collect the material from the old address, in case it does not reach at the new address in time. No correction fee shall be charged for change of address.
19. Duplicate Marksheet: If necessary, a duplicate marksheet can be applied for with a Bank Draft of Rs.200/- in favour of the Registrar, Dr. S.R. Rajasthan Ayurved University Jodhpur, payable at any bank in Jodhpur.

## List Of Institutions

FOR ADMISSION TO PAT/PHT/PUT/BNYS DEGREE COURSE FOR THE SESSION- 2015

S.No.	College Name	Seats
<b>Ayurved Colleges Name</b>		
1	University College of Ayurved, RAU, Jodhpur	50
2	National Institute of Ayurved, Jaipur (Govt. of India)	92
3	Madan Mohan Malviya Govt. Ayurvedic College, Udaipur (Govt. of Rajasthan)	58
4	Shri Bhanwar Lal Duggar Ayurved Vishvabharti, Sardarshahar. (Private)	40
5	Punjab Ayurved Medical College & Hospital, Hanumangarh Road, Maorjanda Khari, Sriganganagar (Private)	50
6	Shekhawati Ayurved Medical College & Hospital, Goushala Road, (Pahdi Ke Pass) Pilani Jhunjhunu (Private)	50
7	Sirdi Sai Baba Ayurved Medical College & Hospital, Renwal, Kishangarh, Jaipur (Private)	50
8	Kala Ashram Ayurved Medical College & Hospital, NHW-27 Dholighati, Village-Bansada, Tehsil- Gogunda, District-Udipur (Private)	60
9	Mahatma Jyotiba Fule Ayurved Medical College, Chomu, Jaipur. (Private)	100
<b>Unani College Name(All Private Colleges)</b>		
1	Rajputana Unani Medical College, Jaipur	50
2	Rajasthan Unani Medical College, Jaipur	40
<b>Homeopathy College's Name(All Private Colleges)</b>		
1	Yuvraj Pratap Singh Memorial Homeopathic Medical College, Alwar	75
2	Swasthya Kalyan Homeopathy Medical College, Jaipur	100
3	Mangilal Nirvan Homeopathy Medical College, Bikaner	75
4	Bhartiya Homeopathy Medical College, Bharatpur	40
<b>Bachelor of Naturopathy &amp; Yoga Science (All Private Colleges)</b>		
1	Vivekanand Naturopathy & Yoga College, Bajor, Sikar	50
2	Om Shiv Shansthan Naturopathy & Yoga College, Mangalwad, Chittorgarh.	40
3	Swasthya Kalyan Institute of Naturopathy & Yogic Sciences, Jaipur	50

- Note: 1. The admissions in Ayurved, Unani & Homoeopathy Colleges for the year 2015 shall be subject to the issuance/ permission of Ayush Deptt. Govt of India and renewal of affiliation by Dr S. R. Rajasthan Ayurved University
2. The renewal of affiliation of the above colleges, and also approval of some new colleges is in progress, hence, the names of colleges from the above list may be deleted or added. As a consequence, the number of seat may be changed.
3. Seats in NRI quota will be 15% of total intake but out of management quota only.

# Rules For Admission

A common entrance test will be conducted for admission in Ayurvedacharya (Bachelor of Ayurvedic Medicine and Surgery) (BAMS)/Bachelor of Homoeopathic Medicine and Surgery (BHMS)/Kamil-E-Tibb-O-Jarahat (Bachelor of Unani Medicine and Surgery)(BUMS) & Bachelor of Naturopathy & Yoga Science(BNYS) i.e. PAT/PHT/PUT & B.N.Y.S. in accordance with the ordinances of Dr S. R. Rajasthan Ayurved University Jodhpur ordinances No. 4 to 7.

## 1. Kinds of seats and Reservations:

All the seats sanctioned by CCIM/CCH for a Government college and for a private college aided by Government of Rajasthan are known as state level seats.

All the seats of National Institute of Ayurveda, Jaipur are National level seats. These shall be filled on the basis of all India merit through PAT-2015: The admissions shall be as per Reservation Rules of Government of India:

S No	Percentage / Seats	Category
1.	15%	Natural Born SC
2.	7.5%	Natural Born ST
3.	3%	Physically Handicapped
4.	27%	OBC
5.	10 seats	Girls

Note: There is no seat reserved for admission of TADA candidates SBC candidate and wards of Defence Personnels/ Para Military Personals at National Institute of Ayurveda, Jaipur.

Reservations on state level seats shall be as per orders of Government of Rajasthan.

S.No.	Percentage/Seats	Category
1.	16%	SC(Including 25% Girls & 3% Physically Handicapped)
2.	12%	ST(Including 45% ST from Notified Tribal Areas,25% Girls & 3% Physically Handicapped)
3.	21%	OBC (Including 25% Girls & 3%Physically Handicapped)
4.	1%	SBC

General Seats

S.No.	Percentage/Seats	Category
1.	25%	Girls
2.	3%	Physically Handicapped
3.	3 Seats	Natural born offspring of defence personnel of Rajasthan origin (1 seat each for Ay.,Hom.&U.)
4.	2 Seats	(1 seat each for Ay. & Hom./U.) Natural born offspring of paramilitary personnel of Rajasthan origin.

After deducting the state level seats of private unaided colleges, the remaining seats are called Management seats.

In case reserved seats are not filled, the unfilled seats shall be transferred to General category seats.

For admission on a state level seat, the candidate must be one who belongs to Rajasthan, as defined in Para 2(d) below.

2. Eligibility: A candidate must fulfill the following conditions for admission:

- (a) A candidate must be a citizen of India.
- (b) Candidate must have passed Senior Higher Secondary (12th Standard) with Science-Biology from Board of Secondary Education, Rajasthan or recognized equivalent Board thereto. Candidates appearing at the 10+2 examination in 2015 may also appear in the test. Candidate must have secured aggregate 50% marks in Physics, Chemistry and Biology in 12th standard for admission in Ayurved & Unani Faculty only.
- (c) Must have completed 17 years of age on or before 01st October 2015 for PAT/PUT & B.N.Y.S. and 31-Dec-2015 for PHT.
- (d) Wherever necessary, a candidate belonging to Rajasthan shall be one who fulfills any one of the following four conditions.
- (i) The candidate must have studied for last three years of the qualifying examination continuously as a regular candidate in a recognized institution in Rajasthan.

**OR**

- (ii) Natural Father/Mother of the candidate has continuously resided in Rajasthan for a period of last 10 years and the candidate has studied for atleast 5 years during this period in a recognized educational Institution in Rajasthan.

**OR**

- (iii) The Candidate is a Son/Daughter of serving or retired employee of (a) Govt. of Rajasthan including officer of All India Service borne on the State cadre of Rajasthan
- (b) Undertaking/Autonomous Body/Corporations/Improvement Trust/Municipal Bodies duly constituted by Govt. of Rajasthan by an act of Law or by Government of India in Rajasthan or (c) any of the University in Rajasthan or Board of Secondary Education, Rajasthan, provided that employee has put in at least three years of service before the year of the admission.

**OR**

- (iv) The candidate is a Bonafide Resident of Rajasthan.
- (e) For admission in Unani colleges, the candidate must fulfill above conditions and must have passed Urdu as additional subject in secondary standard and / or sr. secondary standard.
- (f) The Candidate is required to undergo medical examination before he is allowed to join a college after counseling, if the concerned college deems if necessary.

Note:

1. The relevant certificates, on which eligibility of the candidate is based, will have to be furnished by the candidate.
2. The residence/bonafide certificate wherever required will have to be duly signed by the District Magistrate/Ad. District Magistrate/S.D.M. of the concerned District, is required during the counseling.
3. In case of serving personnel where service conditions have resulted into eligibility, a certificate of the employer will have to be submitted by the candidate during the counseling.

3. Allotment of Place of Study:

1. The Admission Board reserves the right of Allotment of Place of Study on admission of any candidate without assigning any reason.
2. If, for reasons to be recorded in writing, the Admission Board suspects that a particular candidate has obtained a certificate by misrepresenting facts, the matter will be referred to the concerned D.M. On receipt of the enquiry report, the Admission Board shall take the final decision regarding the admission of the Candidate.

# Physics

## (M. K. S. rationalized system of units to be used)

### UNIT 1

Dynamics of Rigid Bodies: Rotation of a rigid body, Torque, angular acceleration, angular momentum, moment of inertia, kinetic energy of rotation, M.I. of ring, statement of theorems of

### UNIT 2

Surface Tension : Definition, angle of contact, capillarity, pressure difference across a spherical film. Determination of surface tension by capillary rise and Jaeger's methods.

Gravitation: Newton's law of gravitation, gravitational constants

Motion: Displacement, velocity and acceleration. Their graphical and mathematical representations.

### UNIT 3

Kinetic Theory of Gases: Postulates of kinetic theory, derivation of pressure of a gas, interpretation of temperature .

Vanderwall's equation. First Law of Thermodynamics: isothermal, isobaric and Dependent isometric (constant volume) processes, specific heat of a gas Stefan's Law, Newton's Law of cooling, Black body spectrum, Wien

### UNIT 4

Nature of Light: Light as wave motion, plane and spherical wavefronts, plane surface, Elementary idea of electromagnetic nature of light waves, quantum nature of light. Superposition of Waves:

Beats, interference, stationary waves in strings and pipes. Doppler's Principle: light waves.

### UNIT 5

Interference: Coherent Sources, Fresnel's biprism. Diffraction: obstacle for plane wave on axial points. Rectilinear propagation of light, Zone plate. X-Ray : Production-Collidge tube, X-

Ray spectra, characteristic X-Ray, uses of X-Ray, Radiation hazards (biological effect law and its application to the field of uniformly charged spherical conductor, Electric potential and field potential at a point

due to an electric dipole, dipole moment. Bio-Savart's Law : Statement and application the axis of a circular coil carrying current.

### UNIT 6

Electrostatics: Fundamental forces of nature (gravitational, electromagnetic and nuclear), conservation and quantisation of charges. Coulomb's law (vector notation), superposition parallel and perpendicular axes and their simple applications. Compound pendulum as a rigid oscillating body and its time period.

Conservation Laws : Conservation of energy, momentum and angular momentum. Applications of conservation laws.

### UNIT 7

Potentiometer: Principle and its application to (i) measurement of potential difference, (ii) internal resistance of a cell, (iii) calibration of voltmeter and ammeter. Electromagnetic Induction: electromagnetic induction, rotating coil in a magnetic field, alternating current, transformers, long distance transmission of power, dynamo and motors.

### UNIT 8

Alternating Currents : R.M.S. and peak values of current and voltage, Phase relationship between voltage and current in a resistor, inductor and in a capacitor in parallel and in series combinations. Definition of impedance and reactance, expressions for instantaneous and average power in A.C. circuits (No derivations), Power factor, wattless current and Chock coil.

### UNIT 9

Positive Ray Analysis: Positive rays, Thomson and Boinbridge mass spectrometer, Isotopes. Atomic theory of hydrogen spectrum and its shortcomings. quantum numbers (total, orbital and exclusion principle, electron configuration in atoms. Matter Waves: De Broglie hypothesis, Davisson and Germer

Experiment. explanation of Bohr's orbits. Radioactivity : Characteristics of alpha, beta and gamma rays,. Laws of disintegration, half and mean lives, radioisotopes and their uses.

### UNIT 10

Magnetic Properties of Matter : Permeability, susceptibility, intensity of magnetisation and relation amongst them. Diamagnetic and ferromagnetic substances and their behaviour in magnetic field. Electronics: Thermionic emission, work function. characteristics of a diode, use of diode as a half and full wave rectifier, power supply, use of Triode, static characteristics and parameters, Triode as an amplifier, Semi-conductors and insulators, energy bands in solids (descriptive idea only), energy gap in insulators, intrinsic and extrinsic semi-conductors (p-type and n-type). PN Junction. Forward and Reverse bias characteristics.

# Chemistry

## UNIT 1

Development of Classical Model of an Atom: Bohr model of an quantisation of electronic energy d-Block Elements : General characteristics, Elementary idea about paramagnetism and

diamagnetism. different oxidation states of levels, Spectral evidence for quantisation, Introductory concept of four quantum numbers, Pauli's exclusion-principle, concept of the spatial distributions of orbitals. Auf The Periodic Law: Long form of the Periodic Table, Electronic configuration and the Periodic Table, Periodicity in Properties, Elementary ideas about ionisation potential, electron, affinity, electronic gravity and atomic radius.

## UNIT 2

Theory of Chemical Bonding : The ionic bond, characteristic properties of ionic compounds. The covalent bond, characteristic properties of covalent compounds, Introductory concept of overlapping of orbitals and  $\sigma$  and " $\pi$ " bonds, Coordinate bond, Oxidation number, Hybridisation as illustrated by common molecules line :  $\text{NH}_3$   $\text{H}_2\text{O}$ ,  $\text{CH}_4$ ,  $\text{C}_2\text{H}_4$  and  $\text{C}_2\text{H}_2$

## UNIT 3

Chemical Equilibrium and Ionic Equilibria: Generalised expression of law of mass action; experimental method for verification of mass law, application to systems as  $\text{N}_2 + 3\text{H}_2 = 2\text{NH}_3$  ;  $\text{PCl}_5 = \text{PCl}_3 + \text{Cl}_2$  ;  $\text{N}_2 + \text{O}_2 = 2\text{NO}$  Ionic Equilibria: Arrhenius theory, evidence in favour of dissociation theory, ionic product of water, hydrolysis, relation between hydrolysis constant; ionic product of water and dissociation constant; solubility product and its applications to analytical chemistry.

## UNIT 4

Acids and Bases: Hydrogen and hydroxyl ions in aqueous solution, Lewis concept of acids and bases. Theory of indicators for acid, alkali titrations, choice of indicators. Oxidation Reduction, ion electron concept. Balancing of equations by ion electron method.

## UNIT 5

Metals: Nature of metallic bond. Occurrence of metals in nature General principles of metallurgy as illustrated by method used for the extraction of iron, copper, aluminium and silver from various types of ores.

s-Block Elements : General characteristics, Trends in variation of properties in periodic table of alkali and alkaline earth metals. transition elements as illustrated by chromium, manganese and iron.

## UNIT 6

Classification of organic compounds, Nomenclature. Homologous series, Functional groups: Isomerism (Position, chain, functional metamerism). Preparation, Properties and uses of Benzene (structure elucidation excluded). Nitrobenzene. aniline and phenol.

## UNIT 7

General method of preparation, properties and uses of alkanes (upto 5 carbon atoms). Isomerism of butanes and pentanes, Substitution reaction (free radical mechanism). Alkenes :General methods of preparation, properties and uses of Ethylene, Electrophilic addition (mechanism). Markownikoff's rule, per properties and uses, Acetylene: Addition reaction Polymerization.

## UNIT 8

General methods of preparation, properties and uses of mono, di and tri-halogen derivatives, (excluding unsaturated, upto 2 carbon atoms, Haloform reaction, synthetic uses of alkyl halides , Polarity of carbon-halogen bond : Elementary concept of nucleophilic substitution. General methods of preparation, properties and uses of the alcohols with reference to methyl and ethyl alcohol : Absolute alcohol and power alcohol, Fermentation.

## UNIT 9

General methods of preparation, properties and uses of ether with reference to diethylether. General methods of preparation, properties and uses of aldehydes and ketones with reference to formaldehyde, acetaldehyde and acetone. Polymerization and condensation reaction (No Mechanism). Similarity and distinction between aldehydes and ketones, idea of mechanism of nucleophilic addition to carbonyl groups.

## UNIT 10

General methods of preparation, properties and uses of monocarboxylic acids with reference to formic and acetic acids. Derivative of fatty acids; acetyl chloride, acetamide, acetic anhydride and ethylacetate. General methods of preparation, properties and uses of aliphatic amines with reference to methyl and ethylamines, Urea.

# Biology

## UNIT 1

Diagnostic characters of the major plant groups: prokaryota, Eucaryota- Thallophyta (Algae, Fungi), Bryophyta, Pteridophyta, Spermatophyta (Gymnosperms and Angiosperms); main branches of Botany.

## UNIT 2

Mendel's laws of inheritance, physical and chemical: Incomplete properties; structure and chief functions of the main organelles cell cycle, mitosis, meiosis, structure and chemistry of chromosomes.

## UNIT 3

Mendel's laws of inheritance : -cross; Incomplete monohybrid and dihybrid dominance, ratios. test cr

## UNIT 4

Primary structure and normal secondary growth in dicot root and stem and primary structure in monocot root and stem; internal structure of isobilateral and dorsiventral leaves.

## UNIT 5

Lower Plant : Distribution, structure; life-history and systematic position of the following taxa :

16. Viruses, Mycoplasma and Bacteria a general account
17. Algae : Ulothrix
18. Fungi : Albugo
19. Bryophyta : Riccia
20. Pteridophyta : Pteridium

## UNIT 6

Higher : Life history of Capsella.

Medical Plant : Medicine obtained, their uses, plant parts from which they are obtained in the following plants: Rauvolfia serpentina, Curcuma longa, papaver somniferum, Ferula asafoetida and Cinchona officinalis.

## UNIT 7

Diagnostic characteristics, generalized floral diagrams and formulae and 5-10, economically important plants of the following families : Cruciferae, Malvaceae, Leguminosae, Solanaceae and Liliaceae.

## UNIT 8

Aims and scope of ecology : Ecosystem concept : plant adaptation, hydrophytes, halophytes xerophytes and mesophytes.

## UNIT 9

Elementary principles of plant physiology-I : Osmosis, Absorption of water passive and active : ascent of sap transpiration and guttation,

Photosynthesis : Mechanism and main factors affecting it

## UNIT 10

Elementary principles of plant physiology- II: Osmosis respiration-types : fermentation, respiratory quotient glycolysis (EMP pathway) ; Krebs cycle (main step only), oxidative phosphorylation; factors effecting respiration, fermentation, growth hormones; plant movements.

# Zoology

## UNIT 1

Protoplasm : Inorganic constituents, Organic, constituents (carbohydrates, liquids, proteins, nucleic acids).

## UNIT 2

Ultra structure of a typical animal cell. Functions of cell organelles, Cell division : mitosis and meiosis. Glycolysis and Krebs cycle.

## UNIT 3

Habits, habitat, structure and life processes of Amoeba. Habitat, habits and structure of plasmodium including life cycle.

## UNIT 4

Habits, habitat, structure and life cycle of Hydra and Ascaris.

## UNIT 5

Habits, habitat, structure and life processes of Pheretima and Periplaneta.

## UNIT 6

Development Biology : (a) Basic features of Development in animals, formation of gametes, structure of ovum, type of eggs, examples of insect, frog, chick and Mammalian eggs; structure of sperm; fertilization; cleavage and significance; types of gastrulation, significance of gastrulation.

## UNIT 7

Anatomy, history and Physiology of the following in Rabbit :

1. Integumentary system
2. Digestive system
3. Respiratory system
4. Circulatory system
5. Musculature of limbs

## UNIT 8

Anatomy and physiology of the following in rabbit

18. Excretory system
19. Reproductive system
20. Elementary idea of different endocrine glands.
21. Receptor organs (eye and ear)
22. Nervous system: Central nervous system (Brain and spinal cord), Peripheral nervous system (Cranial and spinal nerves), autonomic nervous system.

## UNIT 9

Classification of animal Kingdom, mentioning only the general characteristics of the following phyla and classes with example (avoid details) : Non-Chordata :

18. Protozoa Sarcodina Flagellata, Sporozoa, Ciliata.
19. Porifera Calcarea, Hexactinellida, Demospongia.
20. Coelenterata Hydrozoa, Siphonozoa, Actinozoa.
21. Platyhelminthes Turbellaria, Trematoda, Cestoda.
22. Annelida Oligochaeta, Arachnida, Myriapoda, Insecta.
23. Echinodermata Asterozoa, Crinozoa.
4. Mollusca Bivalvia, Gastropoda, Cephalopoda.
5. Minor phyla Ctenophora.

## UNIT 10

General characters of the phylum Chordata and classification upto classes with Characters and examples (avoid details)

(e) Protochordata Hemi, Uro and Cephalo Chordata.

(f) Pisces Elasmobranchii and Teleosts.

(g) Amphibia

(h) Reptilia

(i) Aves

Mammalia

