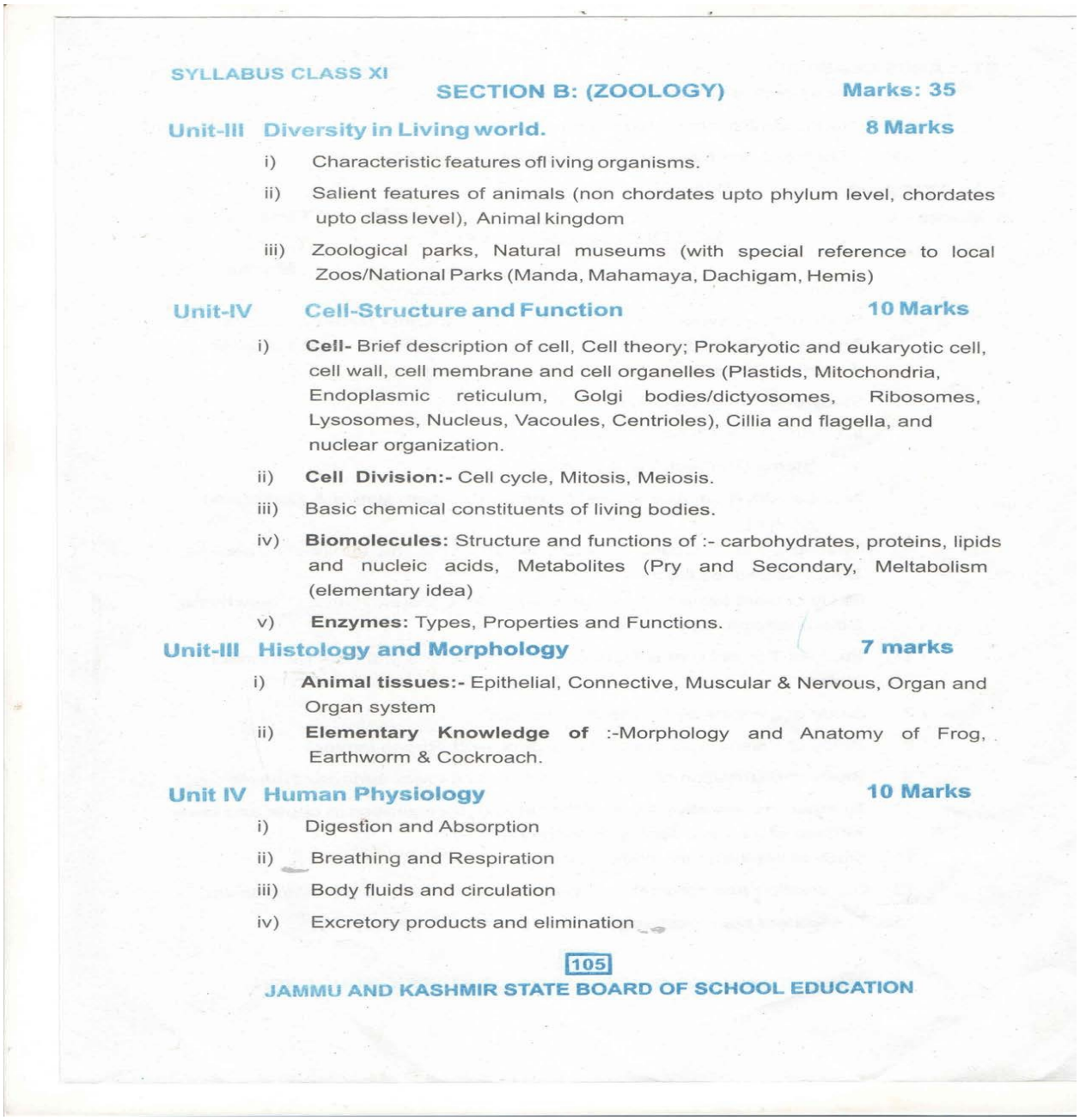
Cluster University Srinagar

ENTRANCE TEST SYLLABUS FOR ADMISSION TO 5-YEAR INTEGRATED, 3-YEAR HONOR'S & PROFESSIONAL PROGRAMMES SESSION 2019



SYLLABUS CLASS XI

SECTION B: (ZOOLOGY) **Marks: 35**

Unit-III Diversity in Living world. **8 Marks**

i) Characteristic features ofl iving organisms.

ii) Salient features of animals (non chordates upto phylum level, chordates upto class level), Animal kingdom

iii) Zoological parks, Natural museums (with special reference to local Zoos/National Parks (Manda, Mahamaya, Dachigam, Hemis)

Unit-IV Cell-Structure and Function **10 Marks**

i) **Cell-** Brief description of cell, Cell theory; Prokaryotic and eukaryotic cell, cell wall, cell membrane and cell organelles (Plastids, Mitochondria, Endoplasmic reticulum, Golgi bodies/dictyosomes, Ribosomes, Lysosomes, Nucleus, Vacoules, Centrioles), Cillia and flagella, and nuclear organization.

ii) **Cell Division:-** Cell cycle, Mitosis, Meiosis.

iii) Basic chemical constituents of living bodies.

iv) **Biomolecules:** Structure and functions of :- carbohydrates, proteins, lipids and nucleic acids, Metabolites (Pry and Secondary, Meltabolism (elementary idea)

v) **Enzymes:** Types, Properties and Functions.

Unit-III Histology and Morphology **7 marks**

i) **Animal tissues:-** Epithelial, Connective, Muscular & Nervous, Organ and Organ system

ii) **Elementary Knowledge of** :-Morphology and Anatomy of Frog, Earthworm & Cockroach.

Unit IV Human Physiology **10 Marks**

i) Digestion and Absorption

ii) Breathing and Respiration

iii) Body fluids and circulation

iv) Excretory products and elimination

v) Locomotion and Movement

vi) Neural control and coordination

vii) Chemical coordination and integration.

PRACTICALS

M.Marks- 15 **Time: 3 hrs.**

SECTION A: (BOTANY)

Marks: 7½

1. Study of different parts of a Compound Microscope.
2. Study of specimens and identification with reasons- Bacteria, Oscillatoria, Spirogyra, Rhizopus, Mushroom, Yeast, Liverwort (Marchantia/Moss (Funaria), Pinus (Male & female cone), Lichens.
3. Study of different modifications in
   a. Roots (Tap & Adventitious)
   b. Stems (Herbaceous & Woody)
   c. Leaves (Leaf arrangement, shape, venation, simple & Compound leaves)
4. Description of 3 locally available flowers from the families- Fabaceae, Solanaceae and Liliaceae (1 from each family)
5. Study of plant tissues from permanent slides (Parenchyma, Collenchyma, Sclerenchyma, Xylem and Phloem)
6. Study of T.S. of Dicot & Monocot Root, Stem and leaf from permanent slides.
7. Study of osmosis by Potato osmoscope.
8. Study of Plasmolysis in epidermal peels(e.g. Rhoeo leaves)
9. Study of distribution of stomato in upper and lower surface of leaves
10. To make comparative study of the rates of transpiration in upper and lower surface of leaves by cobalt chloride method
11. Study of imbibition in seeds/ raisins
12. Observation and comment on the experimental set up on phototropism.
13. To separate plant pigments through paper chromatography.

Environmental Issues: Air and water pollution and their control, solid waste management, agrochemicals and their effects, Radioactive waste management, Green house effect and global warming, Ozone depletion in stratosphere, Deforestation, Any three case studies as success stories addressing environmental issues.

SECTION B (Zoology) — 35 Marks

Unit-I : Reproduction — Marks 11

i) **Asexual Reproduction:** Uniparental, modes: binary fission, sporulation, budding, gemmule, fragmentation, regeneration.

ii) **Human Reproduction**- Male and female reproductive systems, Microscopic anatomy of testis & ovary; Gametogenesis (spermatogenesis & oogenesis. Menstrual cycle), Fertilization, embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (elementary idea), Parturition (elementary idea) and Lactation (elementary idea).

iii) **Reproductive Health:** Need for reproductive health & prevention of Sexually Transmitted Diseases (STD), Birth control- need & methods, Contraception and Medical Termination of Pregnancy (MTP), Amniocentesis, Infertility & assisted reproductive technologies: IVF, ZIFT, GIFT (Elementary idea for general awareness).

Unit–II: Genetics and Evolution — Marks 12

- Sex determination in humans, birds and honeybee.
- Inheritance pattern of Hemophilia and Color blindness in human beings.
- Mendelian Disorders in humans: Chromosomal disorders in humans, Down's syndrome, Turner's & Klinefelter's syndromes.
- Genome and Human Genome project.
- DNA fingerprinting.
- Origin of life: Theories & evidences with special reference to Darwin & Modern Synthetic theory of evolution, Hardy – Weinberg's principal. Adaptive radiation.
- Origin and evolution of Man.

Unit-III : Biology and Human Welfare — Marks 07

- **Health and Disease:** Basic concepts of immunology, vaccines; pathogens, parasites causing human diseases (Typhoid, Hepatitis, Malaria, Filariasis, Ascariasis, Common Cold, Amoebiasis, Ring Worm); Cancer, HIV and AIDS.
- **Insects & human welfare:** Silk, honey, lac.
- Adolescence, drug & alcohol abuse.
- Poultry, Dairy Farming

Unit IV: Biotechnology and its Application — Marks 05

i) Genetic Engineering (Recombinant DNA technology), cloning

ii) Applications in Health: Human insulin & vaccine production, gene therapy

iii) Biosafety issues.