

2S. ZOOLOGY

There shall be following paper and practical for B.Sc.Part-I Semester Two examination. The syllabus is based on 6 theory periods and six practical periods per week (Total 75-80 theory Sessions and 25 practical sessions during the complete semester). There shall be one compulsory paper of 3 hours duration, in theory as stated below and practical examination extending for four hours. Every examinee shall offer the following paper of 100 marks, (Out of which, 80 marks will be for written examination and 20 marks for internal assessments) and practical examination of 50 marks. Candidates are required to pass separately in theory and practical examination.

Marks

1) Paper-II: Cell and Developmental Biology

Theory (Written) 80

Internal assessments 20

2) Practical: 50

Total : 150 Marks

2S-ZOOLOGY

CELL AND DEVELOPMENTAL BIOLOGY

UNIT- 1. General organization of Prokaryote and Eukaryote Cell.

2. Ultra structure and functions of, Plasma membrane

3. Ultra structure types and functions of, Endoplasmic reticulum

UNIT-II: 1. Ultra structure and functions of, Golgi complex

2. Ultra structure and functions of Ribosome

3. Ultra structure and functions of Mitochondria.

4. Ultra structure and functions of Lysosomes.

UNIT-III: 1. Ultra structure and functions of nucleus and nucleolus.

2. Chromosome and its general organization.

3. Structure of Polytene and Lamp brush Chromosome.

UNIT-IV: 1. Mitosis and its significance

2. Meiosis and its significance.

3. Gametogenesis: Spermatogenesis and oogenesis

4. Fertilization: Types of fertilization, Mechanism of fertilization,

UNIT V: 1 Cleavage, and development up to coelome formation in amphioxus

2. Cleavage, Blastulation and gastrulation up to the formation of three germ layers in Frog, Fate map.

3. Cleavage, Blastulation and gastrulation up to the formation of three germ layers in chick.

4. Extra embryonic membranes in chick: Development and significance.

UNIT-VI: 1. Placentation in mammals; Types and Functions of Placenta.

2. Parthenogenesis: Types and, Significance,

3. Regeneration in invertebrates and vertebrates.

4. Elementary idea of, sources, types and use of Stem cells.

Practicals2S- CELL AND DEVELOPMENTAL BIOLOGY

Two practical per week each of 3 period's duration. The Examination shall be of 4 hrs duration and of 50 marks.

1. Use, care and maintenance of microscope.
2. Bacterial Culture, Gram staining.
3. Permeability tests using erythrocytes.
4. Stained preparations of different type of animal cells. (Epithelial, connective, muscular and nervous cells)
5. Study of stages of mitosis in permanent stained slides
6. Study of stages of meiosis in permanent stained slides
7. Preparation of Polytene chromosome in Chironomous or Drosophila larva
8. Preparation of various stages of mitosis in Onion root tip.
9. Preparation of various stages of meiosis in grasshopper testis.

II. Developmental Biology.

1. Study of stages of Gametogenesis in rat/frog, (Permanent Stained Slides)
2. Study of different of types of animal eggs.
3. Study of developmental stages (Life cycle) of cockroach, Housefly, Mosquito, Butterfly, Moth.
3. Collection and Observation of early developmental stages in limnea and frog.
4. Observation of sperm in physiological saline using phase contrast optics.
5. Observation of live chick embryos.
6. Slides of developmental stages of frog: Cleavage, blastula, gastrula, neurula, and tadpoles(WM and Sections).
7. W.M. Slides of Chick embryos at 18, 24, 36, 48, 72 hrs.
8. Mounting of limnea and chick embryos.
9. Study of different types of placenta with suitable histological slides or visual diagram.

Two practical per week each of 3 period's duration. The Examination shall be of 4 hrs duration and of 50 marks.

Note:

Candidates shall be required to produce at the practical examination the following.

Practical record book duly signed by the teacher in charge and Certified by the Head of the department as bonafide work of the Candidate.

Collection of, eggs of different animal, cocoons, developmental stages of insects, frog or other locally available animals.

Distribution of Marks during Practical Examination:

Time: 4 hrs.

- i) Identification and comments on spots
(1-8) - 4 Cytological, 4 Embryological 16 Marks
- ii) Cytological preparation 10 Marks
- iii) Embryological Preparation/Life cycle comments..... 10Marks
- iv) Certified class record 5 Marks
- v) Collection of Developmental stages of insects, frog..... 4 Marks
- v) Viva- voce - 5 Marks

Total: - 50 Marks

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