



Govind Guru Tribal University, Banswara

ZOOLOGY
DCC
ECOLOGY & CELL BIOLOGY
Practical Paper Marking Skeleton

Maximum marks: 100 (End-semester examination)

Time: 5-hour

1. **Write up of Practical I: (EXERCISES ANY ONE)** **10 marks**
 - A. Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community.
 - B. Determination of Density, Frequency and Abundance of Species by Quadrat Method
2. **Write up of Practical II: (EXERCISES ANY ONE)** **10 marks**
 - A. To study the effect of hypotonic, isotonic, and hypertonic solutions on cell permeability.
 - B. To study prokaryotic cells by Gram staining and eukaryotic cells (cheek cells) by haematoxylin/methylene blue.
3. **Write up of Practical III: (EXERCISES SLIDE PREPARATION ANY ONE)** **10 marks**
 - A. Staining and visualisation of mitochondria by Janus green stain
 - B. Preparation of stained mount to show the presence of Barr body in human female blood cells/cheek cells.
 - C. Preparation of a temporary slide of squashed and stained onion root tip to study various stages of mitosis.
4. **Write up of Practical IV: Study of the following specimens/slides 10 specimens:**
(endemic animals and endangered animals, Study of Plant and Animal Relationships, Phytoplankton and zooplankton, various stages of meiosis through permanent slides, Microscopy) **30 marks**
5. Report on a visit to National Park/Biodiversity Park/Wildlife sanctuary **10 marks**
6. **Practical record/ notebook:** **10 marks**
7. **Viva -voce:** **20 marks**


Registrar
Govind Guru Tribal University
Banswara (Rajasthan)



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Practical Examination Semester: II

ZOOLOGY

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ECOLOGY & CELL BIOLOGY

ECOLOGY

1. Study of endemic animals and endangered animals of India with slides/pictures/videos.
2. Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided.
3. Determination of population density in a natural/hypothetical community by quadrat method and calculation of Shannon-Weiner diversity index for the same community.
4. Determination of Density, Frequency and Abundance of Species by Quadrat Method
5. Study of an aquatic ecosystem:
 - a. Phytoplankton and zooplankton
 - b. Measurement of temperature, turbidity/penetration of light, determination of pH
 - c. Dissolved oxygen content (Winkler's method), chemical oxygen demand
 - d. Free carbon dioxide and alkalinity
6. Study of Faunal Composition of Chosen Habitats.
7. Study of Plant and Animal Relationships.
8. Study of Community Structure by Quadrat, Line and Belt Method
9. Report on a visit to National Park/Biodiversity Park/Wildlife sanctuary

CELL BIOLOGY

1. Microscopy: Compound microscope: principle, components, and handling; Phase contrast microscope; Electron microscope; Differential Interference Contrast (DIC) Microscope.
2. Principle and types of cell fixation and staining; Cell fractionation.
3. Staining and visualisation of mitochondria by Janus green stain
4. Micrographs of different cell components (dry lab)
5. To study prokaryotic cells by Gram staining and eukaryotic cells (cheek cells) by hematoxylin/methylene blue.
6. To study the effect of hypotonic, isotonic, and hypertonic solutions on cell permeability.
7. Preparation of a temporary slide of squashed and stained onion root tip to study various stages of mitosis.
8. Study of various stages of meiosis through permanent slides.
9. Preparation of stained mount to show the presence of Barr body in human female blood cells/cheek cells.
10. Cytochemical demonstration of:
 - (a) DNA by Feulgen reaction
 - (b) Mucopolysaccharides by PAS reaction
 - (c) Proteins by Mercuric Bromophenol Blue/Acid Fast Green


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