

**B.Sc GENETICS III YEAR****SEMESTER-V****DISCIPLINE SPECIFIC ELECTIVE (DSE)****DSE- (B)****PAPER: ANIMAL CELL TECHNOLOGY & ANIMAL GENETICS****QUESTION BANK FOR PRACTICALS****Duration= 2 hours****Total= 25M****I. MAJOR PRACTICALS****1x10=10M**

1. Cell freezing and thawing
2. Passaging of suspension and adherent cells
3. Cell viability assay
4. Plating of cells in microtiter plate at defined density

**II. MINOR PRACTICALS****1x5 = 5M**

1. Preparation of cell culture medium
2. Sterilization methods in cell culture
3. Trypan blue exclusion test for cell viability analysis
4. Cell counting

**III. SPOTTERS / EXHIBITS****5x1 = 5M**

1. Laminar air flow
2. Cell culture incubator
3. Liquid nitrogen container
4. Microscopy images of animal cell culture
5. Flow chart for cryopreservation
6. Schematic representation of a vector with cloned insert
7. Nuclear transfer cloning
8. Isolation of bone marrow stem cells
9. Flow chart of southern blotting
10. Schematic representation of western blotting technique

**IV. RECORD & VIVA****5M**

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**B.Sc GENETICS III YEAR  
SEMESTER-V  
DISCIPLINE SPECIFIC COURSE (DSC)  
PAPER: BIOSTATISTICS & BIOINFORMATICS**

**QUESTION BANK FOR PRACTICALS**

**Duration= 2 hours**

**Total= 25M**

**I. MAJOR PRACTICALS**

**1x10=10M**

1. Problems on measures of central tendency (mean, median and mode)
2. Problems on measures of dispersion standard deviation, variance, standard error, coefficient of variation for a variable
3. Problems on hypothesis testing using Z test, t-test and Chi-squared test
4. Problems on probability and probability distributions
5. Sequence retrieval from Genbank/ENA
6. Sequence retrieval from Swissprot

**II. MINOR PRACTICALS**

**1x5 = 5M**

1. Construction of bar diagram, pie diagram, line diagram for a data
2. Construction of histogram and box plot for a data
3. Exploring web portals – NCBI, EBI & ExPASy
4. Literature search through Pubmed and Pubmed Central
5. Pairwise homology search by BLAST and FASTA

**III. SPOTTERS / EXHIBITS**

**5x1 = 5M**

1. Line diagram, bar diagram & pie diagrams
2. Histogram, frequency polygon & frequency curve
3. Normal Probable curve
4. GenBank
5. DDBJ
6. SWISS-PROT
7. PROSITE
8. PIR
9. BLAST
10. Pairwise alignment
11. Multiple sequence alignment
12. PAM and BLOSUM
13. Phylogenetic tree

**IV. RECORD & VIVA**

**5M**

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**B.Sc GENETICS III YEAR**  
**SEMESTER-V**  
**DISCIPLINE SPECIFIC ELECTIVE (DSE- 3E)**  
**DSE-3E (A)**  
**PAPER: PLANT GENETICS AND BIOTECHNOLOGY**

**QUESTION BANK FOR PRACTICALS**

**Duration= 2 hours**

**Total= 25M**

**I. MAJOR PRACTICALS**

**1x10=10M**

1. Preparation of MS Media
2. Establishment of Primary Cell Culture
3. Clonal Propagation from axillary buds
4. Histological studies of embryos at different stages
5. Preparation of synthetic seeds from somatic embryos

**II. MINOR PRACTICALS**

**1x5 = 5M**

1. Introduction to plant tissue culture laboratory equipment
2. Explain various sterilization methods used in tissue Culture
3. Explain Callus induction
4. Explain seed testing for germination
5. Describe the isolation of explants

**III. SPOTTERS / EXHIBITS**

**5x1 = 5M**

1. Chloroplast genome
2. Mitochondrial genome
3. Somatic embryogenesis
4. Callus
5. Culture media
6. Explant
7. Cell suspension cultures
8. Autoclave
9. Laminar air flow
10. Cell differentiation
11. Meristem
12. Protoplast culture
13. Synthetic seeds
14. Anther culture

**IV. RECORD & VIVA**

**5M**

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