

# 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
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	1x10=10M
<ul> <li>II. MINOR PRACTICALS</li> <li>1. Preparation of cell culture medium</li> <li>2. Sterilization methods in cell culture</li> <li>3. Trypan blue exclusion test for cell viability analysis</li> <li>4. Cell counting</li> </ul>	1x5 = 5 <b>M</b>
III. SPOTTERS / EXHIBITS  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	5x1 = 5M

**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

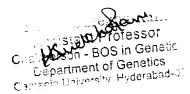
#### **III. SPOTTERS / EXHIBITS**

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** 





# 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
Introduction to plant tissue culture laboratory equipment	
2. Explain various sterilization methods used in tissue Culture	
3. Explain Callus induction	
<ol><li>Explain seed testing for germination</li></ol>	
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

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5M