



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**  
**Question Paper**

**B.Sc. Honours Examinations 2022**

(Under CBCS Pattern)

**Semester - VI**

**Subject : BOTANY**

**Paper : DSE-4T**

**Analytical Techniques in Plant Sciences**

**Full Marks : 40**

**Time : 2 Hours**

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

1. Answer any *four* of the following questions : 5×4=20
- (a) What is compound microscope? How magnification in compound microscope is calculated? 2+3
- (b) Define confocal microscopy. Name one fluorochrome dye and one radioactive dye. 3+2
- (c) Mention advantages of TEM & SEM. Mention uses of freeze etching technique. 3+2
- (d) What is autoradiography? Mention the uses of marker enzymes. 2+3
- (e) Write down the principle of TLC. What is HPLC? 3+2
- (f) What is variation of data? Give the formula used for chi-square test for goodness of fit. 2+3

2. Answer any *two* of the following questions :

10×2=20

(a) What are the techniques of autoradiography? How is autoradiography used in biological research? Why gelatin is used in autoradio graphy? Name two radioactive sources used in autoradiography. 3+3+2+2

(b) Write short notes on :

FACS, FISH, Negative staining & shadow casting.

(c) What is X-ray diffraction? What is X-ray crystallography ? Write the procedure of SDS-PAGE. Write the level of organisation is protein structure. 2+2+4+2

(d) What is population and sample? Give the formulae used to measure central tendency. What is standard deviation? Mention the importance of mean deviation. 2+1+4+2+1

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VidyaSagar University



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**Semester - VI**

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**Paper : DSE-4T**

**Research Methodology**

**Full Marks : 40**

**Time : 2 Hours**

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*The figures in the margin indicate full marks.*

**Group - A**

1. Answer any *four* of the following questions : 5×4=20
- (a) Differentiate the molal solution from molar solution. Name two common acids used in Biological Research. 3+2
- (b) What is proteomics? Explain the basic experimental tools of proteomics.
- (c) What is fixative? Distinguish between Wet preparation and Dry preparation.
- (d) What do you mean by poster presentation and scientific writing?
- (e) Explain transcriptional regulatory network.
- (f) Distinguish between applied and fundamental research.

**Group - B**

2. Answer any *two* of the following questions : 10×2=20
- (a) Write short notes on the following : 5×2
- (i) Field research
- (ii) GFP
- (b) What is field research? Define research methodology. Write in details the research techniques used for field research with advantages and disadvantages. 2+2+4+2
- (c) What is staining? Write down different classifications of stains with suitable example. What is differential staining? 2+6+2
- (d) What is fluorochrome? Explain with suitable example. What are the different cytogenic techniques used in plant science? 2+2+6
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