

2022

BOTANY — HONOURS

Paper : DSE-B-7

(Research Methodology)

Full Marks : 50

The figures in the margin indicate full marks.

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

1. Answer **any five** questions : 2×5
- (a) Distinguish between conceptual and empirical research.
 - (b) Write two functions of pretreating agent in cytogenetic technique.
 - (c) What is dilution factor?
 - (d) Mention two criteria to be considered as model organism in plant science research.
 - (e) Calculate the dry weight required to make 100 ml of 0.5 M sucrose solution (mol. wt. of sucrose 342.3g).
 - (f) Name two types of plant samples used for whole mount study.
 - (g) Why copyright is important in plant science research?
 - (h) Mention two differences between SEM and TEM.
2. Answer **any two** questions : 5×2
- (a) Write a short note on key areas of plant science research in current time.
 - (b) Write a note on 'label of reagent bottle'.
 - (c) Write a short note on scientific writing ethics.
3. Answer **any three** questions : 2½×4
- (a) Write short notes on : 2½×4
 - (i) Objectives of research
 - (ii) Field research
 - (iii) Auxochrome and chromophore
 - (iv) Importance of scale bar in specimen imaging.
 - (b) Schematically represent the key steps followed for microtome based tissue study. What is ultra-thin section? Name the fixative, stain and type of microscope used to visualize ultra-thin sections. 5+2+(1+1+1)

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- (c) What do you mean by Plant Microtechnique? Explain Gram staining mechanism. Distinguish between positive and negative staining with examples. Name two stains used to obtain the banding pattern in karyotype study. 2+3+3+2
- (d) How many types of graphs are used for data representation? What is relative frequency polygon? State the general manual of safe handling of toxic chemicals in laboratory. 5+2+3
- (e) Illustrate different types of reference style used in scientific writing. Mention probable sections for structuring a research article. Draw the layout for preparing a scientific poster. 4+3+3
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