

655/Bot

UG/6th Sem/BOT-H-DSE-T-04A/25

U.G. 6th Semester Examination-2025

BOTANY

[HONOURS]

Discipline Specific Elective (DSE)

Course Code : BOT-H-DSE-T-04A

(Research Methodology)

Full Marks : 40

Time : 2½ Hours

The figures in the right-hand margin indicate marks.

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

1. Answer any five of the following: 2×5=10
- a) Distinguish between applied and fundamental research.
 - b) What is serial dilution technique?
 - c) Difference between whole mount and peel mount.
 - d) What is maceration?
 - e) What is tissue dehydration?
 - f) What is differential staining?
 - g) Why ethics is important in scientific writings?
 - h) What do you mean by plagiarism?

[Turn Over]

2. Answer any two from the following: $5 \times 2 = 10$

- a) What is molar solution? How you will prepare a 500ml sucrose solution of 0.5 Molar concentrations using distilled water? $2+3$
- b) Write in brief about *Arabidopsis thaliana* which is considered as a model organism in Plant research.
- c) How many types of stains are used in plant root tip and flower bud chromosome study? Write the staining procedure for somatic chromosome observation. $2+3$
- d) Write down the guidelines for preparing a well designed poster in brief.

3. Answer any two from the following: $10 \times 2 = 20$

- a) Define research methodology. What is field research? Write in details the research techniques used for field research with advantages and disadvantages. $2+2+4+2$
- b) What do you mean by coagulating fixatives and non-coagulating fixatives? Describe the process of dehydration of tissue using different grades of solvents and highlight the importance of it. $2+2+6$

c) Write an essay on common toxic chemicals used in biological laboratory for research and study with reference to the safety measures in their handling. $5+5$

d) Write notes on:

- i) Abbreviations and nomenclature used in scientific writing. 5
- ii) Art of field photography. 5