

U.G. 6th Semester Examination-2023

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.

ptotic stability of an equilibrium
Dulac's criterion. Show that the

bXY , $\frac{dY}{dt} = cXY - dY$, where

$X(0) = 0$, $Y(0) = 0$ is

and each solution $(X(t), Y(t))$ is
solution. 2+2+6

notes on: 5+5

reproduction number

stic growth and Gompertz growth

1. Answer any five of the following: 2×5=10

- a) What is meant by plagiarism? 1+1
- b) What does molal solution mean?
- c) What is meant by serial dilution?
- d) A sample having diameter of 500 µm given to you to observe under microscope. What method you should follow, Whole mount or sectioning? Justify. 1+1
- e) Write the usefulness of references of a scientific writing.
- f) What is 'microtome'? Where is it used?

[Turn Over]

g) What is meant by carcinogen? Name a carcinogenic chemical used in laboratory.

h) What is meant by random sampling?

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

a) Write a short note on copyright.

b) During a field study, you observed 200 angiosperm, 50 gymnosperms and 25 pteridophytes and 25 bryophytes. Represent this data in pie chart.

c) Mention the utilities of Power-Point presentation and poster presentation.

d) Mention the advantages of using *Arabidopsis thaliana* and *Escherichia coli* as model organisms in biological research.

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

a) What is complex stain? Write down the reagents needed and the procedure of a complex staining system you have studied. $1 + 2 + 7 = 10$

b) Briefly mention five important lab safety rules one should follow in laboratory. 10

c) What do you mean by fixation? Distinguish between coagulant and non-coagulant fixation. Write the utilities of tissue dehydration process.

$2 + 5 + 3 = 10$

d) Write short note on the following techniques:

$2 \frac{1}{2} \times 4 = 10$

1. Peel mount

2. Clearing

3. Maceration

4. Sectioning method