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3(Sem-8/FYUGP)BNC(A)/DSCI

2025

BOTANY

(Discipline Specific Core)

Paper Name: Laboratory and field techniques in Plant Science

Paper Code: **BOT-DSC-243 / BOT-GE-241**

Full Marks: 45

Time: Two Hours

(The figures in the margin indicate full marks for the questions)

Answer in English

1. Answer the following questions: 1x4=4

- (a) Define pH.
- (b) Compound **A** has a boiling point of 200°C, while compound **B** has a boiling point of 100°C. Which is more of a safety concern ?
- (c) What is the SI unit of mass ?
- (d) The Electron microscope is based on which of the following principles:
 - (i) Ultrasonic waves
 - (ii) Light waves
 - (iii) Infrared waves
 - (iv) Wave nature of electrons

2. Write short notes on the following: (any three) 2x3=6

- (a) Scientific notations.
- (b) Safety precautions for autoclave.
- (c) Buffer solution.

(d) Spread plate technique.

3. Answer the following questions: (any three) 5x3=15

- (a) Differentiate between TEM and SEM.
- (b) Write about Biological Databases and its types.
- (c) What are the apparatus and methods used in the accurate measurements of liquids in a laboratory ?
- (d) Write in your own words about hazardous chemicals.
- (e) What is stock solution? Give an account on preparation of Molal, Molar and Normal solution.

4. Answer the following questions: (any two) 10x2=20

- (a) What is culture media. Give detailed description of preparation of PDA media. 2+8=10
- (b) Define electrophoresis. Briefly mention it's types. Give a detailed account on the working principle and procedure for the preparation of Agarose gel electrophoresis unit with labelled diagram. 1+2+7=10
- (c) Define Herbaria. Describe in detail about the preparation and preservation of herbarium specimens. 1+5+4=10
