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BOTANY

(Major)

Paper : 3.2

(**Instrumentation and Laboratory Techniques**)

Full Marks : 60

Time : 2½ hours

*The figures in the margin indicate full marks
for the questions*

Answer all questions

1. Answer the following questions in 1 or 2 word(s) each : 1×7=7
- (a) Fritz Zernicke was awarded Nobel Prize for making — .
(Fill in the gap)
- (b) Write the full form of HEPA filters.
- (c) What is the most frequently used coating material in TLC?
- (d) Name the technique that you will use to sterilize heat-sensitive materials.

- (e) Name the term used to describe a solution containing one gram molecular weight of a substance in one litre of the solution.
- (f) What is the standard size of a herbarium sheet?
- (g) Name the term that is used to describe the power of a microscopic lens system that indicates the size of the smallest object which can be seen clearly.

2. Define the following terms :

2x4^d

- (a) Fixatives
- (b) Camera lucida
- (c) Mounting media
- (d) Paper chromatography

3. Write brief notes on any *three* of the following :

5x3=15

- (a) Advantages of digital camera
- (b) Principle and applications of hot-air oven

- (c) Working principle and applications of spectrophotometer
- (d) Stains and their applications
- (e) Somogyi's reagent

4. Answer the following questions : 10×3=30

- (a) Write the differences between scanning and transmission electron microscopes. Briefly describe the steps that are to be followed for the preparation of specimens for transmission electron microscope.

Or

Describe the principle and applications of laminar air-flow chamber and autoclave. Mention the precautions that are to be followed for using these instruments.

- (b) What is thin-layer chromatography? Describe various steps that you will follow for using the TLC techniques.

Or

What are indicators? Describe different types of indicators. Describe the composition of biuret reagent and its applications.

(4)

(c) : Briefly describe plant collection and herbarium techniques.

Or

Define culture media. Describe different types of culture media. Write about the method of preparation of any two culture media that you have studied.
