

Total number of printed pages-4

3 (Sem-3) BOT M2

2021

(Held in 2022)

BOTANY

(Major)

Paper : 3-2

**(Instrumentation and Laboratory
Techniques)**

Full Marks : 60

Time : Three hours

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

1. Fill in the blanks : 1×7=7
 - (a) The power of resolution of a microscope is the function of _____ of the objective.
 - (b) In _____ microscopy, a high velocity electron beam passes through a specimen to form an image of object.
 - (c) Solid media are prepared by adding _____ to broth.

Contd.

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Contd.

- (d) HEPA filters are used in _____ chamber.
- (e) All types of chromatography are based on distribution of the compound in two immiscible phases, _____ phase and _____ phase.
- (f) _____ sterilization technique is used in autoclave.
- (g) Biuret reagent is used to detect presence of _____ bonds in a compound.

2. Write in brief on : 2×4=8

- (a) Fixation
- (b) Paper chromatography
- (c) Incubator
- (d) Mounting media.

3. Write notes on the following : **(any three)**
5×3=15

- (a) Application of centrifugation technique
- (b) Principle and application of hot air oven

- (c) Beer-Lambert law and Spectrophotometry
- (d) pH meter
- (e) Microtechnique.

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

- (a) Define herbarium. Briefly mention the field and herbarium techniques associated with terrestrial angiosperms. Write about the preservation methods of canes and bamboos. 2+5+3=10

Or

Write about the significance of sterilization in microbiological works. Describe the different types of culture media and mention the methods of sterilization. 2+5+3=10

- (b) Mention the principle and applications of camera lucida. Write about the advantages of application of digital camera in biological studies. 5+5=10

Or

How would you prepare normal, molar and molal solutions ? Write about the different types of indicator solutions and their applications. 5+5=10

- (c) Briefly write about the working principle and applications of electron microscopy and fluorescence microscopy. Mention the differences between SEM and TEM. $4+4+2=10$

Or

Write about the principle, procedure, applications and limitations of thin-layer chromatography. Differentiate between paper chromatography and thin-layer chromatography. $8+2=10$