

**3 (Sem-3) BOT M 2**

**2 0 1 8**

**BOTANY**

**( Major )**

Paper : 3·2

**( Instrumentation and Laboratory Techniques )**

*Full Marks : 60*

*Time : 3 hours*

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

1. Fill in the blanks :

1×7=7

- (a) The fluorescence microscope exposes a specimen to UV, violet or blue light and forms an image of the object with the resulting \_\_\_\_\_ light.
- (b) Scanning electron microscopy is mostly used to reveal \_\_\_\_\_.
- (c) \_\_\_\_\_ cuvettes should not be used in case of UV spectroscopy.
- (d) In case of microbial media, MSM stands for \_\_\_\_\_.
- (e) Nessler's reagent is used to detect the presence of \_\_\_\_\_ in a sample.

- (f) The interior of a glass electrode in pH meter is filled with \_\_\_\_ solution.
- (g) The size of the label in a standard herbarium sheet is \_\_\_\_.

2. Briefly write on the following : 2×4=8

- (a) Lux meter
- (b) Fixatives
- (c) Paper chromatography
- (d) Indicator solutions

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

- (a) Working principle and applications of UV-Vis spectrophotometer
- (b) Bacteriological incubators
- (c) Somogyi's reagent
- (d) Preparation of the stain acetocarmine
- (e) Mounting media

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

- (a) What do you mean by microscopy? Briefly write about the working principles and applications of electron and fluorescence microscope. 2+(4+4)=10

( 3 )

Or

What is sterilization? Why is sterilization necessary in microbiological works? Briefly write about the different bacterial culture media and their sterilization process.  $2+2+6=10$

- (b) What do you mean by thin-layer chromatography? How does it differ from paper chromatography? Briefly write about the principle, application and limitations of thin-layer chromatography.  $2+2+6=10$

Or

Write notes on the following :  $5+5=10$

- (i) Principles and applications of autoclave and centrifuge
- (ii) Application of camera lucida
- (c) Briefly write about the field and herbarium techniques associated with botanical samples. Write a special note about the preservation of succulent and xerophytic plants.  $5+5=10$

( 4 )

Or

Write about the following : 5+5=10

- (i) The method of preparation of molar, ppm and percentage solutions
- (ii) Biological applications of digital camera

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