2019

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 procedure applied in laboratory to separate molecules on the basis of charge is _____ chromatography.

(b) The stationary phase in paper chromatography is a _____.

(c) _____ is the procedure followed by microbiologist to preserve overall morphology of bacterial cell.

(d) In case of microbial media, MSM stands for _____.

(e) _____ is the ability of lens to distinguish between small objects that are close together.

(f) _____ selectively stains lipids in a cell.

(g) Spectrophotometer deals with visible light, _____ and near infrared light.

2. Write briefly on the following : 2×4=8

(a) Working principle of camera lucida

(b) Laminar air flow chamber

(c) Fungal culture media

(d) Herbarium specimens

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

(a) Thin-layer chromatography

(b) Phase-contrast microscope and its applications

(c) Preparation of molal and ppm solutions

(d) Differential staining

(e) Plant microtechniques

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

(a) What does digital imaging mean? Briefly write about the importance of digital image for monitoring plant health and biodiversity. 2+4+4=10

Or

What is fixation and staining? Briefly write about the different types of stains and fixatives used to study the anatomical details of herbaceous plants. 2+2+3+3=10

(b) What is spectrophotometer? Explain the working principle of spectrophotometer employing Beer-Lambert law. Write briefly about the different types of spectrophotometer and their applications and limitations. 2+3+5=10

Or

Write notes on the following : 5+5=10

(i) Principle and applications of incubators

(ii) Advantages and disadvantages of column chromatography

(c) Briefly write about the field and herbarium technique associated with annual and perennial herbs. Write an extraordinary note on specimen collection techniques adopted for aquatic plants. 6+4=10

Or

Write notes on the following : 5+5=1(

(i) Types of indicator solutions and their applications

(ii) Somogyi and Nessler's reagents for biological applications

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