2017

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 first step for preparation of biological specimen for scanning electron microscopy is _____.

(b) _____ is the most common type of radiation used in laminar airflow chamber.

(c) The size of a herbarium sheet is _____.

(d) _____ is the very common liquid culture media for growing bacteria.

(e) The ideal temperature for dry heat sterilization in hot-air oven is _____ degree Celsius.

(f) Tswett, the Russian botanist developed the first chromatography device for separating plant pigments by employing _____ in the column tubes.

(g) PPM stands for _____.

2. Write in brief on the following : 2×4=8

(a) Camera lucida

(b) Molar solution

(c) pH meter

(d) TLC

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

(a) Beer-Lambert law

(b) Somogyi's reagent

(c) Laminar airflow chamber

(d) Working principle of electron microscope

(e) Advantages of digital camera

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

(a) What do you mean by fixatives and stains? Briefly write about the staining and fixation process of any botanical sample. 2+4+4=10

Or

Define culture media. Name the different types of culture media. Write about the methods of sterilization of microbial culture media. 2+3+5=10

(b) What do you mean by chromatography? Mention about the principles and methods of paper chromatography. 2+2+6=10

Or

Write notes on the following : 5×2=10

(i) Spectrophotometer and its applications

(ii) Concept of partition coefficient

(c) Define herbarium. Briefly mention about the procedures for preparation of herbarium of terrestrial angiosperms. Write about the preservation techniques for canes and bamboos. 2+5+3=10

Or

Write about the following : 5×2=10

(i) Method of preparation of normal and molal solutions

(ii) Different types of indicator solutions and their applications

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