2016

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) In 1933, the first phase contrast microscope was developed by _____.

(b) An exposure of _____ at 15 lb/mch^2 pressure is sufficient for autoclaving.

(c) The term 'chromatography' was coined by _____.

(d) _____ solution is used to preserve bottle specimen.

(e) The measurement of standard herbarium sheet is _____.

(f) Canada balsam is a mixture of solid Canada balsam and _____.

(g) _____ stain is used for *Rhizobium* staining.

2. Define the following terms : 2×4=8

(a) Normal solution

(b) R_f value

(c) Indicators

(d) Broths

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

(a) Advantages of digital camera

(b) Hot-air oven

(c) Technique for image documentation

(d) Thin-layer chromatography

(e) Nessler's reagent

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

(a) Describe in brief the working principle and application of fluorescence microscope. Compare phase contrast microscope with electron microscope. 2+3+5=10

Or

Briefly describe the principle and application of pH meter. Write a note on the precautions and maintenance of a pH meter. 5+5=10

(b) What is spectrophotometer? Describe various essential components of a spectrophotometer and its application. 2+4+4=10

Or

Write notes on the following : 5×2=10

(i) Microtechnique

(ii) Centrifugation

(c) Why can herbarium of aquatic plant not be prepared through normal procedure? What special treatments are to be taken to preserve the aquatic and xerophytic plants? 2+4+4=10

Or

Define culture media. Write a method of preparation of any fungal culture media. 2+8=10

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