

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted from the academic year 2008-09 & thereafter)

SUBJECT CODE: BT/ME/BI24

B. Sc. DEGREE EXAMINATION, APRIL 2010
BRANCH V (A) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SECOND SEMESTER

COURSE : MAJOR - ELECTIVES
PAPER : BIOINSTRUMENTATION
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS

I CHOOSE THE RIGHT ANSWER (5 x 1 = 5)

1. The phase contrast microscope was discovered by
a. Leeuwenhoek, b. Robert Hook, c. Zernicke, d. Janssen.
2. For viewing in electron microscope the specimens are mounted on
a. Glass slide, b. Copper grid, c. Diamond slide, d. Resin.
3. Surface details of materials can be studied in
a. SEM, b. Micrometer, c. Phase contrast microscope, d. Centrifuge.
4. Erythrocytes are separated using,
a. TLC, b. Electrophoresis, c. Ultra centrifuge, d. Small bench centrifuge.
5. Absorption spectrum of a substance can be measured using
a. TEM, b. Colorimeter, c. Light microscope, d. Micrometer.

II FILL IN THE BLANKS (5 x 1 = 5)

6. _____ first described the electrophoresis.
7. The formula for calculating resolution is _____.
8. _____ is used for counting the number of cells.
9. The unit of sedimentation coefficient is _____.
10. _____ knife is used in Ultramicrotome.

III MATCH THE FOLLOWING (4 x 1 = 4)

- | | |
|--------------------|--------------|
| 11. Agarose | Fixative |
| 12. Epon | Nucleic acid |
| 13. Carnoy's fluid | Amino acid |
| 14. Zwitterion | Stain |
| | Embedding |

IV STATE WHETHER TRUE OR FALSE**(4 x 1 = 4)**

15. In cryopreservation the materials are cooled at -196°C .
16. Azodyes are used in electron microscope.
17. Only coloured compounds can be separated using paper chromatography.
18. pH of a solution is dependant on temperature.

V. ANSWER ANY SIX OF THE FOLLOWING QUESTIONS IN 50 WORDS EACH**(6 X 3 = 18)**

19. What is ultra centrifugation?
20. Mention the advantages of Spectrophotometer.
21. What is TLC?
22. What are the uses of Phase contrast microscope?
23. Differentiate between positive and negative staining.
24. What is CPD?
25. Name any two fixatives used in Electron microscope and mention their importance.
26. What is stage Micrometer?
27. What is a rotor? Name the different types of rotors.

SECTION - B**ANSWER ANY FOUR OF THE FOLLOWING IN 200 WORDS: (4 x 6 = 24)**

28. Draw and explain the different types of electrodes.
29. Explain the basic principles of separation in Paper Chromatography.
30. Explain the Density gradient centrifugation.
31. Explain the principle and the uses of Polarized light microscope.
32. Explain the technique of PAGE.
33. Write notes on freeze drying, freeze fracture replication and freeze etching.

SECTION - C**ANSWER ANY TWO IN 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY: (2 x 20 = 40)**

34. Explain the principle, construction, operation and uses of Photoelectric colorimeter.
35. Discuss the principle, instrumentation and applications of HPLC and GLC.
36. Explain the various steps involved in the specimen preparation for light microscope.
37. Draw and explain the construction of TEM.
