

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
(For candidates admitted from the academic year 2010 - 11)

**SUBJECT CODE: BT/ME/BI24**

**B. Sc. DEGREE EXAMINATION, APRIL 2011**  
**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. In Electron microscopy \_\_\_\_\_ is the source of illumination.  
a) uv light    b) visible light    c) electron gun    d) tungsten lamp
2. Ascorbic acid can be estimated using \_\_\_\_\_.  
a) pHmeter    b) spectrophotometer    c) GLC    d) PAGE
3. The column used for HPLC is made up of \_\_\_\_\_.  
a) Stainless steel    b) Agarose    c) Silica gel    d) Acrylamide
4. A high speed vacuum type of centrifuge is called \_\_\_\_\_ centrifuge.  
a) Bench    b) ultra    c) analytical    d) micro
5. Formaldehyde is used as a \_\_\_\_\_.  
a) Fixative    b) Stain    c) Mordant    d) mount

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

6. SDS is an \_\_\_\_\_ detergent that binds with the protein.
7. \_\_\_\_\_ unit is the sedimentation value of a particle.
8. Protein shows a maximum absorption in spectrophotometry in a uv range of \_\_\_\_ nm.
9. \_\_\_\_\_ lenses in EM, focuses electron beam on the specimen.
10. \_\_\_\_\_ stains are colouring agents that stains cells at low pH.

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

11. When the slit width is narrow, the data is not reliable.
12. Phospho tungstate is used for negative staining.
13. Coomassie brilliant blue is used to determine protein bands.
14. Ultra microtome is used for preparation of thin sections in EM.

**IV MATCH THE FOLLOWING****( 4 x 1 = 4)**

- |                       |           |
|-----------------------|-----------|
| 15. Celite            | embedding |
| 16. Parrafin          | GLC       |
| 17. Centri fugalfield | fixative  |
| 18. Osmium tetroxide  | RCF       |

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

19. pH meter
20. Beer – lambert's law
21. Chromatogram
22. Dehydration
23. Grid
24. Buffer Solution
25. Bench centrifuge
26. Rf
27. Double staining

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

28. Explain the working principle of double beam photo-calorie meter.
29. How is paper chromatography used in the separation of aminoacids?
30. Differentiate differential centrifuge from density gradient centrifuge.
31. Explain Phase contrast microscope.
32. Write notes on freeze etching.
33. Describe the working principle of Rotary microtome.

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

34. Explain the principle and technique involved in HPLC.
35. What is centrifugation? Write about the principle, unit of measurement and working of Ultracentrifuge.
36. Explain the technique involved in PAGE. What are its applications?
37. Write the procedure for the preparation of specimen for TEM.

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