STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2004-05 & thereafter)

SUBJECT CODE: BT/MO/IS34
ZL/MO/IS34

B. Sc. DEGREE EXAMINATION, NOVEMBER 2008
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
BRANCH VI.A – ADVANCED ZOOLOGY AND BIOTECHNOLOGY
THIRD SEMESTER

COURSE : MAJOR – OPTIONAL
PAPER : INSTRUMENTATION
TIME : 3 HOURS **MAX.MARKS:100**

SECTION – A

ANSWER ALL QUESTIONS **(5 x 3 = 15)**

I WRITE SHORT NOTES ON ANY 5:

1. Beer – Lamberts Law.
2. Autoradiography.
3. Paper chromatography.
4. Gamma rays.
5. Freeze drying.
6. Carnoy's Fluid.
7. Relative Centrifugal Force.
8. Factors affecting Sedimentation.

II. STATE TRUE OR FALSE **(5 MARKS)**

9. The sedimentation coefficient is expressed in svedbergunit (s)
10. Diatomaceous earth is often used as a solid in GLC.
11. Silica Particles with long chain alkanes are used as stationary phase in HPLC.
12. Low molecular weight compounds can be separated using paper chromatography.
13. Colorimetry relates the intensity of the colour to the concentration of the substance in the solution.

III. CHOOSE THE CORRECT ANSWSER **(5 MARKS)**

14. Spectrophotometer uses _____ as the detectors.
    a) Photomultiplier b) Photovoltaic cell c) Tungsten lamp
    d) Deuterium lamp
15. _____ is based on the ionic property of the molecules which enables them to migrate in an electrical field.
    a) Centrifugation b) Electrophoresis c) Spectrophotometry
    d) Chromatography

..2

16. _____ forms an image from radiation that is transmitted through the specimen.
    a) SEM b) Polarising c) TEM d) Phase contrast
17. The common inert carrier gas in Gas chromatography is
    a) Oxygen b) Nitrogen c) Phosphorus d) Hydrogen
18. _____ are capable of operating at very High speed of about 75000 rpm.
    a) Highspeed Centrifuge b) Analytical Centrifuge
    c) Desktop Centrifuge d) Ultra Centrifuge

IV. MATCH THE FOLLOWING: (5 MARKS)

19.	Phase contrast microscope	-	Cell Fractionation
20.	Autoradiography	-	Liquid nitrogen -196^0C
21.	SDS page	-	Annular stop
22.	Freeze Fracture	-	Mercaptoethanol
23.	Differential centrifugation	-	Radioactive element.

SECTION - B

ANSWER ANY FIVE QUESTIONS. EACH ANSWER NOT TO EXCEED 300 WORDS. DRAW DIAGRAMS. (5X6=30)

24. Describe the working of Geiger – Muller counter.
25. Explain the Principle on which the Flame Photometer is working.
26. Write down the characters of Alpha and Beta rays.
27. Give the block diagram of Double beam Spectrophotometer.
28. Describe Polarising microscope.
29. Describe the working of a calorie meter.
30. Give an account of the principle and estimation of calcium.

SECTION - C

ANSWER ANY TWO QUESTIONS. EACH ANSWER NOT TO EXCEED 1200 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY. (2X20=40)

31. How will you separate Proteins using Electrophoretic methods?
32. Write down the Principles, Techniques and application of HPLC.
33. Write an essay on ultra centrifugation.
34. Compare only the Principles of TEM & SEM. Give the construction of TEM and write down its applications.

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