Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University) Coimbatore- 641043

Master's Degree Examinations - November 2018
Semester I

Class : I PG **Max Marks : 60**
Major : Biochemistry **Time : 3 Hours**

17MBCC01 Biophysical methodology

PART – A **10X ½ =5**

Choose the correct answer

1. In gas chromatography, the basis for separation of the components of the volatile material is the difference in
   a) partition coefficients b) conductivity c) molecular weight d) molarity

2. The electrophoresis technique that used isoelectric focusing is
   a) AGE b) PFGE c) 2D-PAGE d) SDS-PAGE

3. The refractive index of air is
   a) 0.50 b) 0.75 c) 1.00 d) 1.25

4. When the power of ocular lens is 10 X and objective lens is 20 X, the magnification is
   a) 30 times b) 20 times c) 200 times d) 2000 times

5. Which of the following is not an IR vibrational mode?
   a) Scissoring b) Stretching c) Rocking d) Rolling

6. Where does a carbonyl (C=0) stretch appear in an IR spectrum?
   a) 1740-1720 b) 1870-1650 c) 3640-3250 d) 160-110

7. Molar absorbtivities of compounds exhibiting charge transfer absorption are
   a) small b) moderate c) large d) none of these

8. Molar absorbtivity is the measure of the amount of light
   a) absorbed per unit length b) absorbed per unit concentration
   c) reflected and absorbed per unit concentration
   d) none of these

9. Who prepared and explained nanotubes for the first time?
   a) SumioTijima b) Richard Smalley
   c) Eric Drexler d) Richard Feynmann

10. Nano particles of which atom are used to control collateral damage due to explosion?
    a) Copper b) Aluminium c) Carbon d) Lead

PART – B 5 X 4 =20

Answer all questions

Answer should not exceed 200 words or one page

11. a). Explain the thin layer chromatography.

(Or)

11.b). Illustrate about immunoelectrophoresis.

12. a). Write short note on autoradiography.

(Or)

12.b). Discuss the X-ray diffraction.

13. a). List out the properties of electromagnetic radiation.

(Or)

13.b). Give an account on electron spin resonance spectroscopy.

14. a). Enumerate the Raman spectroscopy.

(Or)

14.b). Mention the applications of mass spectroscopy.

15. a). Discuss the biodetection of pathogen,

(O)

15.b). How is cancer detected?

PART – C 5 X 7 =35

Answer all questions

Answer should not exceed 600 words or three pages

16. a). Describe the principle and applications of ultracentrifugations.

(Or)

16.b). Write a detail note on HPLC.

17. a). Elucidate the principle and instrumentation of phase contrast microscope.

(Or)

17.b). Enumerate the principle and instrumentation and applications of SEM.

18. a). Explain the various types of molecular spectra,

(Or)

18.b). Describe the organisation of UV visible spectroscope.

19. a). Write an essay on flourimetry.

(Or)

19.b). Describe the principle and instrumentation of flame photometer.

20. a). Explain the concept of nanomaterials and bionanomaterials.

(or)

20.b). Mention the medicinal applications of nanotechnology.

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