(6 pages)

1660/HT1

OCTOBER 2011

INSTRUMENTATION

Time : Three hours Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

Choose the correct answer:

1. _____ is required by electrical balance to move the pointer when Compared with the physical balance

(a) More weight (b) Less weight

(c) No weight (d) None of the above

2. Electrical balance is _____ the physical balance

(a) Less sensitive than

(b) More sensitive than

(c) Not sensitive than

(d) As sensitive as

3. The maximum resolving power of a good medical laboratory microscope is

(a) 0.25 µm (b) 0.5 µm

(c) 0.75 µm (d) 1.0 µm

4. Transmission Electron Microscope can magnify objects

(a) 10,000—100,000X

(b) 1,000—100,000X

(c) 100 — 10,000X

(d) 100,000 — 10,00,000X

5. _____ gradients are used for the separation of nucleic acids.

(a) Cesium salts (b) Glucose

(c) Sucrose (d) All of the above

6. Kinds of experiment performed by analytical ultra centrifuge

(a) Sedimentation velocity

(b) Sedimentation equilibrium

(c) Both (a) and (b)

(d) None of the above

7. Sterilization by steam without pressure is called

(a) Inspissation (b) Filter sterilization

(c) Deionization (d) None of the above

8. Filters of colorimeter generates _____ light

(a) Monochromatic (b) Polychromatic

(c) Polarized (d) Depolarized

9. Monochromator which produce radiations of single wavelength based on diffraction are

(a) Prism (b) Grating

(c) Photocell (d) None of the above

10. In spectrophotmeter the hydrogen lamp produces

(a) UV light (b) Visible light

(c) Both (a) and (b) (d) None of the above

11. Gas chromatography is based on _____ of analyte between a solid stationary phase and a mobile gas

(a) Partition equilibrium

(b) Partition coefficient

(c) Sedimentation equilibrium

(d) Sedimentation coefficient

12. The supporting media for zone electrophoresis is _____

(a) Whatman No. 1 paper

(b) Cellulose acetate paper

(c) Polyacrylamide gel

(d) All of the above

13. The optimum catalytic functioning of Taq polymerase is _____

(a) 95°C (b) 55°C

(c) 75°C (d) 85°C

14. pH was the term introduced by

(a) Nernst (b) Newton

(c) Sorenson (d) Sabiston

15. Osmometer measures the osmotic strength of

(a) Solution (b) Colloid

(c) Compound (d) All of the above

16. Clifton nanolitr osmometer determines _____ of aqueous solution

(a) Melting point (b) Freezing point

(c) Both a and b (d) None of the above

17. The auto pacer of Ames USA is a _____ of modulator device

(a) Discrete analyzer

(b) Continuous flow analyzer

(c) Centrifugal analyzer

(d) None of the above

18. The syringe is capable of delivering _____ of the specimen in diluter of auto analyzer

(a) 5 to 1,000 µl (b) 5 to 500 µl

(c) 10 to 1000 µl (d) 10 to 500 µl

19. Solid scintillation counting is ideal for _____ emitters

(a) Gamma (b) Beta

(c) Alpha (d) X-rays

20. _____ is useful for tracking biochemical events occurring in cells, tissues and organs

(a) Autoradiography

(b) Ionization method

(c) GM counter

(d) Scintillation counter

SECTION B — (5 × 6 = 30 marks)

Answer any FIVE questions

21. Describe the working of double pan balance.

22. Write briefly about boiling water bath.

23. Describe about Kodak photochemistry analyzer.

24. Give short account on auto pacer.

25. Describe about distillation apparatus.

26. Give short notes on gamma counters.

27. Describe about ELISA and its applications.

SECTION C — (5 × 10 = 50 marks)

Answer any FIVE questions

28. Compare and contrast preparative and analytical ultra centrifugation.

29. Describe the features of Systronics flame photometer.

30. Explain PCR with its applications.

31. Describe about laser and ultra microtome.

32. Explain the classification of automated system.

33. Explain the mechanism of liquid and solid scintillation counting.

34. Discuss the features of Clinical Corona.

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