DF-3034
B. Sc. (Bioscience) (Sem. III) Examination
March / April – 2016
303 : Biophysics & Instrumentation

Time : 2 Hours] [Total Marks : 50

Instructions :

(1) Fill up strictly the details of signs on your answer book.

Name of the Examination : B. Sc. (SEM. 3) (BIOSCIENCE)
Name of the Subject : 303 : BIOPHYSICS & INSTRUMENTATION
Subject Code No. : 3 0 3 4

(2) This exam contains 50 multiple choice questions, each worth 1 mark.

(3) Choose only ONE most appropriate answer per question.

(4) Do not crease or fold the answer sheet.

O.M.R. Sheet का अनेकांश अवरोध सुरक्षा के लिए अनुरोध किया जाता है।

Important instructions to fillup O.M.R. Sheet is given back side of provided O.M.R. Sheet.
1 The presentation of qualitative data through various types of geometrical devices is known as
(A) Electrophoresis
(B) Paper chromatography
(C) Tabulation
(D) Graphical representation of data

2 A pie chart is also known as
(A) Sector diagram
(B) Both Circular chart and Sector diagram
(C) None of these
(D) Circular chart

3 An example of radioactive isotope is
(A) \(^{32}\)P
(B) \(^{45}\)Ca
(C) All of these
(D) \(^{60}\)Co

4 Difference in the solubility of solute molecule for the mobile & stationary phase is
(A) Partition chromatography
(B) Exclusion chromatography
(C) None of these
(D) Adsorption chromatography

5 Atomic mass and atomic number are continuously changes in
(A) Stable compound
(B) Radioactive compound and Stable compound both
(C) None of these
(D) Radioactive compound
6. Which of the following is used for sterilization?
   (A) Stable isotopes
   (B) Radioactive isotopes and Stable isotopes both
   (C) None of these
   (D) Radioactive isotopes

7. During the radioactivity nuclei is
   (A) Provide the energy
   (B) Lose energy and change elements
   (C) Lose the energy and Provide the energy both
   (D) Lose the energy

8. Who developed electrophoresis separation technique?
   (A) H. Khurana
   (B) N. Nirenberg
   (C) Arne Tiselius
   (D) Robert Hook

9. Data that is directly obtained from an individual is called
   (A) Secondary data
   (B) Grouped data
   (C) Ungrouped data
   (D) Primary data

10. Raw data is also known as
    (A) Known data
    (B) Group data
    (C) Ungroup data
    (D) Unknown data
11 Which of the following is an optical instrument, except?
   (A) Colorimeter
   (B) Spectrophotometer
   (C) Microscope
   (D) Electrophoresis

12 Absorption is directly proportional to
   (A) Molecular weight of the substance
   (B) Charged of the substance
   (C) All of these
   (D) Concentration of substance

13 A technique that separates substance under the influence of an electric field is called
   (A) Electrophoresis
   (B) Electro endosmosis
   (C) TLC
   (D) Chromatography

14 Which of the following is a separation technique, except?
   (A) Chromatography
   (B) Colorimetry
   (C) None of these
   (D) Electrophoresis

15 Factors affecting the migration of charged particle are
   (A) Charge
   (B) pH of buffer
   (C) All of these
   (D) Voltage

16 An alkaline pH protein can move towards
   (A) -ve charge
   (B) Cathode
   (C) None of these
   (D) +ve charge

17 If distance between electrode is increased then migration of charged particle is
   (A) Decrease
   (B) Both Increase and Decrease
   (C) None of these
   (D) Increase
18 Basic requirement for electrophoresis, except
   (A) Buffer solution
   (B) Gel
   (C) Power pack
   (D) Runner solution

19 Which of the following is an example of gel electrophoresis, except ?
   (A) Agarose
   (B) Paper
   (C) PAGE
   (D) Agar

20 Beer's law & Lambert's law is the working principle of
   (A) Spectrophotometer
   (B) Both Calorimeter and Spectrophotometer
   (C) Chromatography
   (D) Calorimeter

21 Which of the following is a type of paper chromatography ?
   (A) Horizontal
   (B) Descending
   (C) All of these
   (D) Ascending

22 If the intensity of transmitted light is 100% then optical density is
   (A) 0.1
   (B) 0.001
   (C) None of these
   (D) 0.01

23 If the stationary phase is paper & mobile phase is liquid, then type of
   chromatography is known as ...........
   (A) TLC
   (B) Paper chromatography
   (C) All of these
   (D) Cellulose acetate electrophoresis

24 If the concentration of solute is same but light path is varies, then absorption is
   (A) Decreased
   (B) Varies
   (C) None of these
   (D) Increased
25 Photocell is present in
   (A) pH meter
   (B) Both Electrophoresis and pH meter
   (C) Colorimeter
   (D) Electrophoresis

26 Rf value is always
   (A) More than one
   (B) Zero
   (C) None of these
   (D) Less than one

27 Which of the following is not a chromatography method?
   (A) Gel-electrophoresis
   (B) Gel-filtration
   (C) Adsorption chromatography
   (D) Partition chromatography

28 The colorimeter requires
   (A) Cuvette
   (B) Photocell
   (C) All of these
   (D) Filters

29 Data which was directly obtained from an observation are called
   (A) Secondary data
   (B) Both Primary data and Secondary data
   (C) None of these
   (D) Primary data

30 PAGE is a
   (A) Paper electrophoresis
   (B) Gel-filtration chromatography
   (C) None of these
   (D) Cellulose acetate electrophoresis
31. Who developed electrophoresis technique?
   (A) Robert Hook  (B) Nirenberg  
   (C) Tiselius  (D) H. Khorana

32. Natural radioactive element belongs to
   (A) Oxygen, Nitrogen and Carbon series
   (B) Both Uranium, Thorium and actinium series and Oxygen, Nitrogen and Carbon series
   (C) None of these
   (D) Uranium, Thorium and actinium series

33. An example of radioactive isotopes
   (A) $^3{\text{P}}$
   (B) $^{15}{\text{Ca}}$
   (C) All of these
   (D) $^{60}{\text{Co}}$

34. Differences in solubility of solute molecule for the mobile and stationary phase is the principle of .......
   (A) Adsorption chromatography
   (B) Gel-filtration
   (C) None of these
   (D) Partition chromatography

35. Natural radioactive elements belongs to
   (A) Thorium
   (B) Actinium
   (C) All of these
   (D) Uranium

36. Full form of 'RAD' is
   (A) Radiation Activity Dose
   (B) Radio Active Dose
   (C) Roentgen Absorbed Dose
   (D) Radiation Absorbed Dose

37. Full form of 'SDS' is
   (A) Sodium Dodecyl Sulphate
   (B) Both Sodium Di Sulphate and Sodium Dodecyl Sulphate
   (C) None of these
   (D) Sodium Di Sulphate

38. Hb concentration of nine patient is 10, 16, 13, 15, 11, 13, 12, 13, 11. Find out a median
   (A) 11  (B) 15
   (C) None of these  (D) 13

39. In which diagram there is no space between two columns?
   (A) Line diagram
   (B) Pie diagram
   (C) Bar diagram
   (D) Histogram

40. The most frequent observation among the data is called
   (A) Median  (B) Mean
   (C) None of these  (D) Mode
41 Radioactive isotopes is useful for
   (A) Nuclear reactor          (B) Atomic weapon
   (C) All of these            (D) Sterilization

42 Which of the following is not an example of type of chromatography ?
   (A) Partition chromatography
   (B) Exclusion chromatography
   (C) All of these
   (D) Adsorption chromatography

43 Basic requirement for paper chromatography is
   (A) Developer solution
   (B) Mixture of solution
   (C) All of these
   (D) Runner solution

44 Beer's & Lambert's law is not the principle of
   (A) Spectrophotometer
   (B) Both Colorimeter and Spectrophotometer
   (C) None of these
   (D) Colorimeter

45 If mobile phase is liquid and stationary phase is solid, than chromatography is called
   (A) LLC                      (B) GSC
   (C) GLC                      (D) LSC

46 If ionic strength increase then migration of charge particle is
   (A) Decrease
   (B) Varies
   (C) None of these
   (D) Increase

47 Which of the following is not a basic requirement for electrophoreses ?
   (A) Buffer
   (B) Fixative
   (C) pH electrodes
   (D) Densitometer

48 Which diagram used to show the trend of event with the passage of time?
   (A) Multiple line diagram
   (B) Both Single line diagram and Multiple line diagram
   (C) Pie chart
   (D) Single line diagram

49 Study of collection, analysis & interpretation of data obtained from biological study is called
   (A) Arithmetic
   (B) Biostatistics
   (C) All of these
   (D) Mathematics

50 Which of the following is type of data, except ?
   (A) Discrete data          (B) Qualitative data
   (C) None of these          (D) Continuous data