

S Y B Sc
SEM IV
Chemistry paper -III
Sample Questions
Exam Mission 2020

1. The difference between maximum value and minimum value in the given set of observation is called as -----
 - a. deviation
 - b. mean
 - c. mode
 - d. range.
2. Separation of the desired substances under the influence of electrical effect is known as-
 - a. distillation
 - b. centrifugation
 - c. precipitation
 - d. electrophoresis.
3. The doubtful value in a given set of measurements is rejected or retained using ----- test.
 - a. Q-Test
 - b. Student t
 - c. F-test
 - d. V-test
4. In potentiometric titrations, an electrode whose potential changes during the course of titration is called ----- electrode.
 - a. Reference
 - b. Saturated Calomel
 - c. Indicator
 - d. Glass electrode
5. The glass electrode is an ----- electrode.
 - a. Ion specific
 - b. Ion selective
 - c. Reference electrode
 - d. Indicator electrode
6. A conductivity cell contains-----electrode.
 - a. Silver
 - b. Nickel
 - c. Platinized Platinum
 - d. Zinc
7. The unit of cell constant is-----in conductometry.
 - a. S
 - b. S cm-1
 - c. cm-1
 - d. mt.
8. The F-test is used for -----
 - a. testing of significance
 - b. rejection of data
 - c. obtaining the best fitting line
 - d. acceptance of data

9. Centrifugation is a separation process based on----
- absorption
 - physical constant
 - precipitation
 - none of these.
10. Thin layer chromatography is-----type of chromatography.
- adsorption
 - Partition
 - Absorption
 - desorption
11. In Conductometric titration _____ of solution changes during the course titration.
- colour
 - E.M.F.
 - conductance
 - pH
12. ----- is used as indicator electrode in potentiometric titrations.
- Saturated calomel electrode
 - Platinum electrode
 - Conductivity cell
 - Both a and b
13. In the graphical representation of pH metric titrations, a graph of ----- is plotted against volume of the titrant added.
- pH
 - E.M.F.
 - conductance
 - potential
14. The reference electrodes used in Potentiometry is -----.
- conductivity cell
 - saturated calomel electrode
 - combined glass electrode
 - quinhydrone electrode
15. Null hypothesis is often used as test of -----.
- repeatability
 - significance
 - uncertainty
 - deviation
16. The variance ratio test is known as -----.
- T-test
 - F-test
 - Q-test
 - M-test
17. Solvent extraction is also called as-----
- liquid-liquid extraction
 - solid-liquid extraction
 - liquid-gas extraction
 - gas-as extraction.

18. Distribution of solute between two liquids is governed by-----
- Ohm's law
 - beer's law
 - Nernst's distribution law.
 - Avagadros law
19. In gas solid chromatography, gas is-----
- Stationary phase
 - Mobile phase
 - Volatile phase
 - None of these.
20. Planar chromatography includes ----- chromatography.
- Only thin layer
 - only paper chromatography
 - thin layer as well as paper
 - None of above
21. In paper chromatography, stationary phase is -----.
- solid
 - liquid
 - gas
 - None of above
22. Solvent extraction based on -----.
- Nernst distribution law
 - Beer-Lambert's law
 - Nernst equation
 - Law of Mass action
23. For a set of observations, the difference between the highest and lowest numerical value is called -----.
- deviation
 - range
 - standard deviation
 - Median
24. The peak of Gaussian distribution curve represents ----- error.
- positive
 - maximum
 - zero
 - No
25. For large number of observations, when $s \rightarrow \sigma$ the confidence limit is given by -----.
- $\pm \sqrt{Z\sigma} / N$
 - $\pm Z\sigma / \sqrt{N}$
 - $Z\sigma / N$
 - None of above
26. Distribution of solute between two liquids is governed by----
- Ohm's law
 - beer's law
 - Nernst's distribution law.
 - Only b and c

27. -----is an instrument which shows measurement of electrochemical properties of the analyte.
- Colorimeter
 - potentiometer
 - Spectrophotometer
 - pH meter
28. The peak of Gaussian distribution curve represents ----- error.
- Positive
 - maximum
 - zero
 - one
29. Electrophoresis is a----- method.
- separation
 - electroanalytical
 - thermal
 - optical method
30. Chromatography consists of ----- phases.
- three
 - infinite
 - two
31. Quinhydrone electrode is used as----- electrode in acid base potentiometric titration.
- reference
 - indicator
 - counter
 - metal
32. When a strong base like NaOH is added to the solution of strong acid, pH of mixture----.
- remains constant
 - increases
 - decreases
 - None of above
33. The unit of conductance is -----.
- Siemens
 - ohms
 - volts
 - ampere
34. In conductometric titrations, ----- is measured during the course of titration.
- pH
 - corrected conductance
 - conductance
 - potential
35. If the pH of the aqueous solution is 11.2, then it will be-----.
- acidic
 - neutral
 - alkaline
 - None of above

36. The plot of pH vs. volume of titrant added is ----- shaped.
- “V”
 - “U”
 - “S”
 - “L”
37. In normal error curve -----is plotted on Y - axis.
- observation
 - frequency of occurrence
 - mean
 - Median
38. Confidence limit using range can be obtained by ----- formula.
- $\pm C_n R$
 - $C_v R$
 - $C_w R$
 - $C_x R$
39. Null hypothesis is valid means-----.
- $t_{cal} < t_{tab}$
 - $t_{cal} > t_{tab}$
 - $t_{cal} = t_{tab}$
 - Both b an c
40. The separation in TLC is because of -----of solute between the two phases.
- adsorption
 - partition
 - both adsorption and partition
 - absorption
41. -----is used as primary reference electrode.
- Hydrogen electrode
 - Standard Hydrogen Electrode
 - Calomel electrode
 - Glass electrode
42. A voltaic cell is also known as -----.
- galvanic cell
 - electrolytic cell
 - half cell
 - None of above
43. Quinhydrone electrode works satisfactorily in the pH range of -----.
- 1 to 8
 - 8 to 11
 - 11 to 14
 - only at 7
44. Glass electrode is an example of ----- electrode.
- metal-metal ion
 - redox
 - membrane
 - acid base

45. Reduction potential of saturated calomel electrode is -----.
- 0.242 V
 - 0.282 V
 - 0.338 V
 - 0.362 V
46. The unit of specific conductance is -----.
- S cm⁻¹
 - S cm
 - S⁻¹ cm
 - S
47. For rejection of a result, the test used is -----.
- F-test
 - Q-test
 - Null hypothesis
 - 2.5 d rule
48. Method of averages is used for -----.
- rejection of data
 - test of significance
 - obtaining best fitting line
 - null hypothesis
49. The 4.0 d rule is used for -----.
- rejection of result
 - test of significance
 - for comparison of means
 - obtaining best fitting line.
50. Confidence limits are defined as -----.
- $\pm ts/\sqrt{n}$
 - $\pm t/\sqrt{sn}$
 - $\pm s/\sqrt{tn}$
 - s/t
51. Separation methods can be described as-
- Physical methods
 - Chemical methods
 - Instrumental methods
 - All of these.
52. Chemical methods of separation are based on-
- Physical Properties of the components
 - Chemical properties of the components
 - Difference in the properties of the of the components
 - Similarities in the properties of the components
53. Which of the following component gives precipitation of the required component?
- Gravimetric reagent
 - coloring reagent
 - Indicators
 - acids
54. Chemical methods of separation is based on following property-
- size of sample
 - Solubility of the sample
 - Precipitation
 - Charge.

55. ----- method is based on formation of solid crystals.
- Precipitation
 - Solvent extraction
 - Crystallization
 - Chromatography
56. ----- is the measure of volatility of the chemical substance
- Vapor pressure
 - Atmospheric pressure
 - Hydrostatic pressure
 - Partial pressure
57. Boiling point of a liquid is the temperature at which vapour pressure is equal to the-
- Vapor pressure
 - Atmospheric pressure
 - Hydrostatic pressure
 - Partial pressure
58. Raoult's law is-
- $A = \epsilon \cdot c \cdot l$
 - $K = C_1/C_2$
 - $A = -\log T$
 - $K = V_1/V_2$
59. Ion exchange chromatography is based on-
- Migration of ions.
 - Exchange of ions
 - Charge of the ions
 - All of these
60. Variance =?
- S^2
 - X^2
 - R^2
 - Y^2
61. Relative Average Deviation can be expressed in terms of-
- pph
 - moles
 - millimole per grams
 - All of these.
62. Which of the following is used as mobile phase in Paper chromatography?
- Petroleum ether
 - Silica gel
 - Alumina
 - Ion exchange resins.
63. Two liquids can be separated by distillation if their boiling point differ at least by---
- 10°C
 - 20°C
 - 30°C
 - 40°C
64. Which of the following comes under partition type of chromatography?
- Thin layer chromatography
 - Column chromatography
 - Gas solid chromatography
 - Paper chromatography

65. In Paper and TLC, Colorless components can be detected under----
- U.V. lamp
 - Visible lamp
 - Mercury lamp
 - LED lamp
66. In ascending type of chromatography, solvent moves in----- direction.
- Upper
 - Lower
 - Towards the center
 - Towards periphery
67. In descending type of chromatography, solvent moves in----- direction.
- Upper
 - Lower
 - Towards the center
 - Towards periphery
68. Which Of the following is median in the given set of observations?
11.20, 11.22, 1.23, 11.23, 11.25, 11.30
- 11.20
 - 11.22
 - 11.23
 - 11.30
69. If the observation is repeated in the given set of observations, then it is called as-----
- Mean
 - Mode
 - Median
 - Average deviation.
70. Precision is expressed in terms of-----
- Mean
 - Mode
 - Median
 - deviation.
71. Arithmetic average of the set of observation is known as----
- Mean
 - Mode
 - Median
 - deviation.
72. Value of mean for the following set of observation
10.00, 10.00, 10.00,10.00 is----
- 10.00
 - 20.00
 - 30.00
 - 40.00
73. The method of averages is used for -----
- Rejection of data
 - Obtaining mean of the test
 - Obtaining the average of the test
 - Obtaining the best fitting line

74. The odd result will not only increase the range of the set, but also the ----of the set.
- mean
 - mode
 - median
 - standard deviation
75. The f-test is also known as-----.
- Null Hypothesis
 - Variance ratio test
 - Test of significance
 - Q-test
76. For the line passing through the origin ,the equation is -----.
- $y=mx+c$
 - $y= mx$
 - $y=mx-c$
 - $y=mx/c$
77. The choice of indicator electrode will depend upon the type of -----being performed in Potentiometry.
- reagent
 - titration
 - titrant
 - titrate
78. The quinhydrone electrode can function satisfactorily in ----- solutions.
- highly alkaline
 - highly acidic
 - highly dilute
 - highly concentrated
79. If the value of E_{cell} and ----- are known ,then the pH of the solution can be determined.
- E_G
 - emf
 - current
 - charge
80. The ideal pH range for the safe drinking water is -----.
- 5.0 to 7.0
 - 6.0 to 8.0
 - 7.0 to 9.0
 - 6.0 to 8.0
81. The pH of the buffer solution added during the EDTA titration should be -----.
- 7.0
 - 8.0
 - 9.0
 - 10.0
82. The buffer solution of pH=4 and pH=----- are used to for the standardization of pH meter.
- 8.2
 - 9.2
 - 10.2
 - 11.2

83. Above the pH=9, the response of the combined glass electrode is deteriorates with the ---
----- in the pH value.
- decrease
 - increase
 - change
 - no change
84. If the measured pH does not correspond to the actual value, but it is less. This is known as----- error of the electrode.
- Acidic
 - Alkaline
 - Neutral
 - Both a and b
85. pH meters can be considered as voltage sources with ----- of the following internal resistances.
- Very low resistance
 - Moderate resistance
 - Very high resistance
 - No resistance
86. Which of the following is not a failure in pH meters?
- Defective electrodes
 - Defective input circuitry
 - Defective electronic circuitry
 - Defective calibration
87. Which of the following is the simplest of pH meters?
- Null-detector type pH meter
 - Direct reading type pH meter
 - Digital pH meter
 - Modern pH meter
88. Which of the following is the value of hydrogen ion concentration of pure water?
- 1×10^7 moles/litre
 - 1×10^5 moles/litre
 - 1×10^6 moles/litre
 - 1×10^8 moles/litre
89. Which of the following is the value of hydroxyl ion concentration of pure water?
- 1×10^7 moles/litre
 - 1×10^5 moles/litre
 - 1×10^6 moles/litre
 - 1×10^8 moles/litre
90. Which of the following is the relation between hydrogen and hydroxyl ion concentration of pure water?
- Value of hydrogen ion concentration is greater
 - Value of hydroxyl ion concentration is greater
 - They are both always the same
 - The concentrations keep changing
91. The Nernst equation is given by which of the following statements?
- $E = E_o + 2.303 RT/F \log CH$
 - $E = E_o - 2.303 RT/F \log CH$
 - $E = E_o + 2.303 RT \times F \log CH$
 - $E = E_o - 2.303 RT \times F \log CH$

92. Which of the following is the relation between the concentration of hydrogen and hydroxyl ions in an acidic solution?
- Value of hydrogen ion concentration is greater
 - Value of hydroxyl ion concentration is greater
 - They are both always the same
 - The concentrations keep changing
93. Which of the following is the relation between the concentration of hydrogen and hydroxyl ions in a basic solution?
- Value of hydrogen ion concentration is greater
 - Value of hydroxyl ion concentration is greater
 - They are both always the same
 - The concentrations keep changing
94. The basic principle of Conductometric titration is the change in the conductance of the solution due to the difference in the ----- conductance's.
- non ionic
 - ionic
 - cations
 - anions
95. Cell constant= k/G , where k is ----- of KCl and G is its conductance.
- cell constant
 - rate constant
 - specific conductance
 - specific constant