

Arts Commerce and Science college Bodwad, Dist: Jalgaon
Department of Chemistry
Question Bank
S.Y.B. Sc -Sem-III -2020-21
Chemistry -III (CH-304:SEC-1) Basic analytical chemistry

1. Analytical chemistry is study of _____
 - a) Mathematical expression
 - b) Structures of molecules
 - c) Shapes and size of molecules
 - d) **Instrumental methods**

2. Entire analysis of sample constitutes _____
 - a) Separation
 - b) Identification
 - c) Quantification
 - d) **All of the above**

3. Qualitative analysis Identifies _____
 - a) **Quality of analytes**
 - b) Amount of analytes
 - c) Concentration of analytes
 - d) None of the above

4. Quantitative analysis determines _____
 - a) Quality of analytes
 - b) Amount of analytes
 - c) Concentration of analytes
 - d) **Both b and c**

5. Analytical chemistry has _____
 - a) Specific subjective nature
 - b) **Interdisciplinary nature**
 - c) Both a and b
 - d) None of the above

6. Analytical chemistry plays important role in
 - a) Mathematical science
 - b) Life sciences
 - c) Earth science
 - d) **Pharmaceutical science**

7. Measurement of drugs and metabolites is carried out in _____
 - a) Physical chemistry
 - b) Organic chemistry
 - c) **Analytical chemistry**
 - d) Inorganic chemistry

8. Analytical chemistry has importance in...
- Determining adulterants
 - Soil testing
 - Water testing
 - Medical technology and research
 - Harvested crop testing
 - All of the above**
9. Spectroscopy is one of the type of ...
- Physical chemistry
 - Inorganic chemistry
 - Computational chemistry
 - Analytical chemistry**
10. The determination of the absolute or relative abundance of present sample is
- Quantitative analysis**
 - Qualitative analysis
 - Spectroscopical analysis
 - None of the above
11. An acid base titration is an example of ...
- Quantitative analysis**
 - Qualitative analysis
 - Spectroscopical analysis
 - None of the above
12. Identification of elements in a sample is ...
- Quantitative analysis
 - Qualitative analysis**
 - Spectroscopical analysis
 - None of the above
13. To treat and diagnose the disease of a patient uses...
- Quantitative analysis
 - Qualitative analysis**
 - Spectroscopical analysis
 - None of the above
14. Forensic science use
- Quantitative analysis
 - Qualitative analysis**
 - Spectroscopical analysis
 - None of the above
15. The process of extracting representative piece of material from larger amount is called
- Separation
 - Quantitative analysis
 - Fragmentation
 - Sampling**

16. The information used to identify a sample includes...

- a) Sample description
- b) Time sample was taken
- c) Location sample was taken from
- d) Person who took the sample
- e) Method used to select the sample
- f) **All of the above**

17. Accuracy is

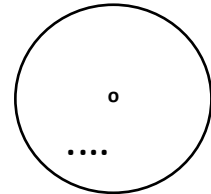
- a) **Closeness of a result to the true value**
- b) Closeness of all possible measurements
- c) Closeness to the terminal value
- d) None of the above

18. Precision is

- a. **When all results are close to one another**
- b. When results are close to true values
- c. When results are close to mean value
- d. When results are apart from each other

19. The dots in a circle close together but apart from centre point then it is....

- a) More accurate but less precise
- b) **More precise and less accurate**
- c) Both accuracy and precision is high
- d) None of the above



20. The number of important single digits is called

- a) True number
- b) False number
- c) **Significant number**
- d) Non-significant number

21. Non zero digits are always...

- a) True number
- b) False number
- c) **Significant number**
- d) Non-significant number

22. Rounding off is ...

- a) Addition of numbers
- b) **Simple number by keeping its value close to what it was.**
- c) Subtracting the number
- d) Eliminating error in the number

23. The difference between the computed value and corrected value is called...

- a) Rounding off of number
- b) Significant number
- c) **Error**
- d) Non-significant number

24. The absolute error is...
- The difference between the measured value and true value.**
 - The divide of measured value and true value
 - The multiplication of measured value and true value
 - The addition of measured value and true value
25. The relative error is...
- The difference between the measured value and true value.
 - The divide of measured value and true value**
 - The multiplication of measured value and true value
 - The addition of measured value and true value
26. Faulty calibration is a type of...
- Method error
 - Personal error
 - Instrumental error**
 - None of the above
27. Wrong identification of colour of the solution at the end point of titration is...
- Method error
 - Personal error**
 - Instrumental error
 - None of the above
28. Minimisation of errors can be done by....
- Calibration of apparatus
 - Performing blank titration
 - Parallel determination
 - Standard addition
 - Isotopic dilution
 - All of the above**
29. The document which provide detailed information of chemical products is called...
- Laboratory manual
 - Laboratory rules
 - Material safety data sheet**
 - Laboratory safety data sheet
30. The temperature and condition that can cause chemical to catch fire is given in MSDS under section of
- Reactivity data
 - Toxicology data
 - Fire and explosion hazard**
 - Physical data
31. The short term and long-term health effects from exposure to the chemical products is given in MSDS under section of.....
- Reactivity data
 - Toxicology data**
 - Fire and explosion hazard

d) Physical data

32. In precipitation titrations

- A) Formation of precipitate occurs
- B) Formation of insoluble substance occurs
- C) Formation of soluble salt occurs

D) A and B Both

33. Indicator used in precipitate titration is.....

- A) K_2CrO_4
- B) Ferric alum
- C) Fluorescein

D) All of these

34. Potassium chromate is used as indicator in

- A) Fajan's method
- B) Mohr's method**
- C) Volhard's method

D) All of these

35. In Fajan's method colour change of indicator is due to

- A) Coloured precipitate formation
- B) Adsorption of indicator anions**
- C) Water soluble coloured complex formation

D) None of these

36. Adsorption indicators are used for detection of end point in.....method.

- A) Fajan's method**
- B) Mohr's method
- C) Volhard's method

D) All of these

37. In Mohr's method colour change of indicator is due to

- A) Coloured precipitate formation**
- B) Adsorption of indicator anions
- C) Water soluble coloured complex formation

D) None of these

38. For preparation of 1000 ml N solution of $AgNO_3$, quantity of $AgNO_3$ required is.....grams.

A) 107.8

B) 169.9

C) 10.78

D) 16.99

39] Fe^{+3} is used as indicator in

A) Fajan's method

B) Mohr's method

C) Volhard's method

D) All of these

40. In which method Ferric alum is used as an indicator, when excess of titrant SCN added after equivalence point.

A) Fajan's method

B) Mohr's method

C) Volhard's method

D) all of these

41. Which of the following are applications of precipitation titration.

A) Determination of halides and thiocyanates

B) Determination of Silver in Silver alloy

C) Determination of Sulphate in Urine

D) All of these

42.is an unknown sample can be determined by titration with standard AgNO_3 solution.

A) Chloride

B) Bromide

C) Iodide

D) All of these

43. Which indicator used in determination of Sulphate in Urine.

A) Thorin indicator

B) Fluorescein

C) K_2CrO_4

D) Ferric alum

44. Determination ofis the application of precipitation titration.

A) halides

B) silver

C) thiocyanates

D) All of these

45. Which indicator used in determination of thiocyanates.

A) Fe(III)

B) Fluorescein

C) Ferric alum

D) Thorin

46. Which indicator used in Fajan's method.

1) Fluorescein

2) Ferric alum

3) Thorin

4) Fe(III)

47. In which method Fluorescein is used as an indicator.

1) Volhard's method

2) Fajan's method

3) Mohr's method

4) All of these

48. In which method adsorption like eosin is used.

1) Volhard's method

2) Fajan's method

3) Mohr's method

4) All of these

49. In Fajan's method adsorption indicator like fluorescein oris used.

1) Ferric alum

2) eosin

3) Thorin

4) Fe(III)

50. Which indicator is used as adsorption indicator.

1) fluorescein or eosin

2) Thorin

3) Fe(III)

4) Ferric alum

51. Estimation of chloride by using.....method.

1) Volhard's

2) Mohr's

3) Fajan's

4) All of these

51. Which method is used for preparation of AgNO_3 solution.

1) From metallic silver

2) From solid AgNO_3

3) Both A and B

4) Non of these

52. Standardisation of AgNO_3 solution by usingmethod.

1) Mohr's

2) Fajan's

3) Volhard's

4) All of these

53. Estimation of chloride by using.....method.

1) Fajan's

2) Volhard's

3) Mohr's

4) All of these

54. 1000 ml of 1 N AgNO_3 solution containgrams of AgNO_3 .

1) 169.9

2) 16.99

3) 4.25

4) None of these

55. 1000 ml of 0.1 N AgNO_3 solution contain.....grams of AgNO_3 .

1) 169.9

2) 16.99

3) 4.25

4) None of these

56. Which of the following is suitable indicator for strong acid strong base titrations?

a) Methyl red.

b) Bromothymol blue.

c) Phenolphthalein.

d) All of these.

57. Titrations of acetic acid and NaOH is an example of titration

a) strong acid-strong base .

b) Weak acid-Strong acid.

c) Strong acid- Weak base.

d) weak acid-Weak base.

58. The suitable indicator for weak acid strong base titration is

a) Methyl orange.

b) Methyl red.

c) Phenolphthalein.

d) Bromothymol blue.

59. Transition range of indicator is defined as

a) $\text{pH} = \text{pK}_{\text{in}} + 1$

b) $\text{pH} = \text{pK}_{\text{i}} - 1$

c) $\text{pH} = \text{pK}_{\text{in}} + 1$

d) $\text{pH} = \text{pK}_{\text{in}}$

60. Transition range ofis from 3.1 to 4.4

a) Methyl red.

b) Methyl orange.

c) Bromothymol blue.

d) Phenolphthalein.

61. Transition range of Phenolphthalein is

a) 8.3 to 10.

b) 6.0 to 7.6

c) 4.2 to 6.3

d) 3.1 to 4.4

62. During strong acid strong base titration.

a) pH at start is 2.87

b) pH at equivalence point is 7

c) pH increases sharply from 7.1 to 10.3 pH units.

d) All of above.

63. During acid base titration

a) There is formation of salt and water.

b) H^+ ion Concentration changes continuously.

c) PH of solution changes continuously.

d) All of above.

64. When number of milliequivalents of acid is equal to number of milliequivalents of base ,it is called

a) End point.

b) Neutralization point .

c) Equivalence point.

d) None of these.

65. The colour change of indicator from colourless to pink is shown by

a) Methyl red.

b) Methyl orange.

c) Phenolphthalein.

d) Bromothymol blue.

66. False statement regarding acid base indicators is

a) They are weak organic acids or bases.

b) They show colour change at a particular PH.

c)They exist in two forms.

d) Their colour changes due to change in PH.

67. The best indicator for strong acid strong base titration is

a) Bromothymol blue.

b) Methyl red .

c) Methyl orange.

d) Phenolphthalein.

68. For titration of 0.1 N acetic acid and 0.1 N NaO, PH at start and PH at equivalence point are respectively.

a) 2.87 and 8.7

b) 1.0 and 7.0

c) 8.7 and 2.87

d) 7.0 and 1.0

69.is the stage of in the acid base titration at which indicator shows colour change .

a) Equivalence point.

b) Neutralization point.

c) End point .

d) All of these.

70. The transition range of Bromothymol blue is

a) 8.3 to 10

b) 6.0 to 7.6

c) 4.2 to 6.3

d) 3.1 to 4.4

71. The titration of HCl(Hydrochloric acid) and NaOH is an example of titration.

a) Strong acid-Strong base.

b) weak acid-Strong base.

c) Strong acid-weak base .

d) weak acid-Weak base.

72.is the stage in acid base titration at which solution is neutral and PH of solution is exactly 7.

a) End point.

b) Equivalence point.

c) Neutralization point .

d) None of these.

73. Which important method for the determination of nitrogen in proteins and other organic compound containing nitrogen.

a) Titration of amino acids.

b) Saponification of oils and fats.

c) purity of aspirin .

d) Kjeldahl Analysis.

74. Transition range ofis form of 4.2 to 6.3

a) Methyl red.

b) Methyl orange.

c) Phenolphthalein.

d) Bromothymol blue.

75. Which of the suitable indicator for weak acid strong base titration.

a) Methyl red .

b) Methyl orange.

c) Phenolphthalein.

d) All of above

76. Which of the following is responsible for the acidic PH of normal rainwater.

a) **CO₂**

b) NO₂.

c) SO₂.

d) NH₃.

77. A solution of known Concentration is the definition of a

a) Buffer solution.

b) **Standard solution.**

c) Neutral solutions

d) standard solutions.

78. Which is correct sequence of assay of aspirin.

a) Aspirin + 2,3 drops of Phenolphthalein+NaOH solution+ethanol.

b) Aspirin+NaOH solution+ ethanol+ 2,3 drop Phenolphthalein.

c) Aspirin + ethanol + 2,3 drop Phenolphthalein + NaOH solution.

d) **Aspirin + NaOH solution+ ethanol+ 2,3 drop of Phenolphthalein**

79. Ion exchange chromatography based on

a. **Electrostatic attraction.**

b. Electrical mobility of ionic species.

c. Adsorption chromatography.

d. Partition chromatography.

80. In column chromatography false statement is

a. Silica Gel or Alumina is used for packing the column.

b. There should not be their gaps in column.

c. **Column should be allowed to dry.**

d. Eluting solvent is continuously added from top.

81. In descending technique of paper chromatography

a. Solvent moves against gravitational force.

b. Solvent moves up the paper.

c. **Rate of flow of solvent is fast.**

- d. Time required is more.
82. Thin layer chromatography is
- a. Partition chromatography.
 - b. Ion exchange chromatography.
 - c. Adsorption chromatography.**
 - d. Gel permeation chromatography.
83. In thin layer chromatography
- a. Best lines cannot be drawn with pencil.**
 - b. Only glass plate for used.
 - c. More time and more amount of mixture is required.
 - d. Cost of recruitments is high.
84. Correct statement about chromatography is
- a. Time required is less.
 - b. Costly solvents are required.**
 - c. Selection of solvent is easy.
 - d. Skillful operation are not essential.
85. Advantage of chromatography is
- a. It is perfect and non tedious method.
 - b. Components having same physical or chemical properties can be separated.
 - c. Apparatus required are simple.
 - d. All of the above.**
86. Paper chromatography separates molecule according to their
- a. Molecular size b. Polarity
 - c. Solubility** d. Matrix
87. Column chromatography separates molecule according to their
- a. Adsorption.** b. Molecular size.
 - c. Solubility. d. Matrix.
88. Column chromatography is..... type of chromatography
- a. Partition b. Adsorption
 - c. Ion exchange. **d. b Or c.**
89. RF value of substance changes with change in

- a. Size of paper. b. Size of jar.
c. **Solvent.** d. Concentration of compound.

90. Which is not the requirement of good developing solvent?

- a. It must be chemically inert.
b. It should not be viscous.
c. **It should react with solutes to be separated.**
d. It should not be chemically inert.

91. What is the maximum RF value for any compound in paper chromatography

- a. 0.1. **b. 1.0** c. 10.0 d. 0.5.

92. In Ion exchange chromatography separation of component is based on exchange of...

- a. **Ion of similar charge.** b. Ion of Opposite charge.
c. Mass of ion. d. Size of Ion.

93. The factor affecting RF value is

- a. pH of solution. b. Nature of paper.
c. Nature of solvent. **d. All of the above.**

94. In TLC supporting material use on glass plate is

- a. CuSO₄ and Al₂O₃ **b. CaSO₄ or Al₂O₃**
c. CdSO₄ Or FeSO₄ d. MgSO₄ and MgO.

95. Using the paper chromatography the RF value of xanthophyll and chlorophyll pigments are 0.7 and 0.3 respectively, then what is proof for this pigment.

- a. Xanthophyll are more soluble than chlorophyll.
b. Chlorophyll has larger molecule than xanthophyll.
c. **Chlorophyll has travelled further than xanthophyll.**
d. Chlorophyll is more polar than than xanthophyll.

96. Paper chromatography is example ofchromatography.

- a. **Partition chromatography.** b. Adsorption.
c. Ion exchange. d. Gel.

97. Thin layer chromatography is chromatography

- a. Partition chromatography. **b. Adsorption.**
c. Gel. d. Ion exchange.

98. RF value is the ratio of distance travelled by.....

a. Solvent front to solute.

b. compound to solvent front.

c. Solute to salute front.

d. Solvent to compound.

99. which of the following is not used in packing of column in column chromatography

a. Silica Gel.

b. Alumina.

c. MgO.

d. Copper sulphate.

100. the solution coming out of column at the bottom and is called

a. Elute.

b. Alute.

c. Solute.

d. Solvent.