M.Sc. Part-I (Sem – I) Paper-IV Ana. Chem. Sample Multiple Choice Questions

1. How many stages are needed for inspection and testing in TQM as per ISO:9001?
a. 1
b. 2
c. 3
d. 4

2. Accuracy is defined as:
a. A measure of how often an experimental value can be repeated
b. The closeness of a measured value to the real value
c. The number of significant figures used in a measurement
d. The average of measured value

3. Which of the following is caused by careless handling?
a. Systematic error
b. Gross error
c. Random error
d. Zero error

4. Capacitive transducer is used for_____
a. Static measurement
b. Dynamic measurement
c. Transient measurement
d. Both static and dynamic

5. Who issues ISI mark in India?
a. Food safety and standard Authority of India
b. National standard organization of India
c. Bureau of Indian standard
d. Both b) and c)

6. Precipitation, volatilization and particulation are all types of_____
a. Electrochemical analysis methods.
b. Gravimetric analysis methods
c. Titrimetric analysis methods
d. Spectroscopic analysis methods

7. Which of the following is NOT a laboratory safety rule?
a. You should never mix acids with bases
b. You should tie back your long hair
c. You should add water to acid
d. You should wear appron for primary safety

8. Which option is correct for given statements about quality assurance?
 Statement 1: It assures that quality requirements will fulfilled
 Statement 2: Quality assurance is product oriented
a. False, False
b. True, False
c. True, True
d. False, True

9. The concentration of a solution is expressed as the number of moles in which of the following volumes?
a. 1 cm3
b. 1 ml
c. 1 L
d. 1 dL

10. What is the concentration of a 22 grams of carbon dioxide occupying 0.5 m^3 volume?
a. 1 mole/m^3
b. 2 mole/m^3
c. 11 mole/m^3
d. 22 mole/m^3

11. What is the molarity of a solution with a mass of solute 10 kg mass and 100 liter volume?
a. 0.1 molar
b. 1 molar
c. 10 molar
d. 100 molar

12. Which of the following statements is FALSE for the chemical equation given below in which nitrogen gas reacts with hydrogen gas to form ammonia gas assuming the reaction goes to completion? $N_2 + 3H_2 \longrightarrow 2NH_3$

a. One mole of N_2 will produce two moles of NH_3.
b. One molecule of nitrogen requires three molecules of hydrogen for complete reaction.
c. The reaction of 14 g of nitrogen produces 17 g of ammonia.
d. The reaction of three moles of hydrogen gas will produce 17 g of ammonia.

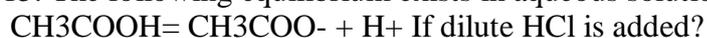13. Balance the following equation using minimum integral coefficients:
$NH_3 + O_2 \longrightarrow NO_2 + H_2O$, the stoichiometric coefficient for oxygen gas O_2 is:
a. 1
b. 4
c. 3
d. 7

14. In which of the following the solubility of AgCl is minimum?
a. 0.1 M NaNO3
b. water
c. 0.1M NaCl
d. 0.1M NaBr

15. The following equilibrium exists in aqueous solution.
 CH3COOH= CH3COO- + H+ If dilute HCl is added?
a. acetate ion concentration will increase
b. acetate ion concentration will decrease
c. equilibrium constant will increase
d. equilibrium constant will decrease

16.Real deviation is observed, if concentration of the solution exceeds---
a. 10^{2M}
b. 10^{-2M}
c. 10^{5M}
d. 10^{-5M}

17. Real deviation is observed, if concentration of the solution exceeds---
a. 10^{2M}
b. 10^{-2M}
c. 10^{5M}
d. 10^{-5M}

18. Beer-Lambert's law gives the relation between which of the following?
a. Reflected radiation and concentration
b. Scattered radiation and concentration
c. Energy absorption and concentration
d. Energy absorption and reflected radiation

19. n-π* transition gives----- shift.
a. Red
b. Violet
c. white
d. Blue

20. which of the following are the applications of IR spectroscopy?
a. Protein characterization
b. Identification of compounds
c. Quantitative analysis
d. All of these

21. Which of the following are the advantages of FTIR?
a. Multiplex advantage
b. Throughput advantage
c. Precision advantage
d. All of these

22. Diffuse reflectance spectroscopy involve------- function for the quantitative photometric analysis.
a. Beer-Lamberts law
b. Kubelka-Munk
c. Ostwald
d. Gibbs

23. Which of the following statements given below is false?
a. TGA, DTA and DSC are measured using same instrument
b. TGA and DTA can be carried out simultaneously.
c. TGA, DTA and DSC are measured using different instruments.
d. TMA is a recent name of Dilatometry.

24.In thermogravimetric analysis, the result obtained appear as a _____
a. Continuous chart
b.Continuous parabola
c. Continuous circular positions
d. Discontinuous chart

25. A rapid TGA method is used for which of the following process?
a. Decomposition of polymers exothermally
b. Decomposition of enzymes exothermally
c. Decomposition of crystals endothermally
d. Decomposition of reactions isothermally

26. In power compensated DSC instrument, Sample & Reference holders are fitted and have -------- resistance thermometers for monitoring temp of two materials separately.
a. Pt
b. Ag
c. Cu
d. Al

27. In heat flux DSC,the sample temp is estimated by means of the -------- junction under sample disc.
a. Silver/Aluminium
b. Chromal/Aluminium
c. Copper/ Aluminium
d. Platinum/Aluminium

28. DSC is used to study stability of ------ of sample which requires an airtight sample chamber.
a. reduction
b. oxidation
c. precipitation
d. neutralization

29. Number of determinations per day are much higher in --------- methods
a. manual
b. automation
c. kinetic
d. pneumatic

30. In -------- analyzer, individual samples are maintained as separate entities and kept in a separate vessels throughout in each unit operation.
a. Discrete
b. Non discrete
c. Flow injection
d. Flow pressure

31. Robotic system is controlled by a --------- that can be instructed to bring samples to the master laboratory station where they can perform all procedures.
a. microprocessor
b. macroprocessor
c. hard disc drive
d. random memory

32. Due to the use of automatic titrator, we can save time & reduce demand for technical skill because all steps are automatic, ------ is no longer involved.
a. user
b. nonuser
c. robot
d. None of the above.