Duration: 3 Hours **Total Marks: 75**

N.B.: 1. All questions are compulsory
2. Figures to right indicate full marks

Q. I Choose appropriate option for the following multiple choice-based questions. **20**

1 How much impurities are tolerated in primary standard sometimes?
   a. 1 % to 2 %
   b. 0.1 % to 0.2 %
   c. 0.01 % to 0.05 %
   d. 0.01 % to 0.02 %

2 Measurement which is close to true value is _____.
   a. Accuracy
   b. Average
   c. Precise
   d. Error

3 Reagent error can be minimized by _____.
   a. Running blank determinations
   b. Using Calibrated instruments
   c. Running parallel determinations
   d. Replacing the sample

4 The titrant used in iodometric analysis is _____.
   a. Potassium permanganate
   b. Sodium thiosulphate
   c. Potassium iodate
   d. Iodine

5 According to Arrhenius theory, base is a compound that is capable of producing _____when dissolved in water
   a. Hydrogen ion
   b. Amphiprotic Substances
   c. Conjugate acid
   d. Hydroxyl ion

6 Conductivity is defined as the ability to carry _____.
   a. Voltage
   b. Resistance
   c. Current
   d. Voltage and Current

7 Reaction between a weak acid and a weak base give _____.

a. Neutral salt
b. Basic salt
c. Acidic salt
d. Amphiprotic Substances

8 Reactions involving electron transfer are called _____.

a. Precipitation reactions
b. Acid-base reactions
c. Complexometric reactions
d. Redox reactions

9 Unpredictable fluctuation in the readings of a measurement apparatus or in the experimenter's interpretation of the instrumental reading is the example of _____ error.

a. Instrumental errors
b. Random errors
c. Personal errors
d. Systematic errors

10 pH range for the Phenolphthalein for colour change at the end point is _____.

a. 3.8-5.2
b. 4.2-6.4
c. 6.6-8.2
d. 8.2-10

11 Ksp = $[Na^+]$ $[Cl^-]$ indicates the

a. Saturated solution
b. Precipitation occurs
c. No precipitation
d. No Change

12 Which method is oldest titration method in precipitation titration?

a. Volhard's method
b. Mohr's Method
c. Fajan's Method
d. Modified Volhard's method

13 The auxillary electrode in polarography is

a. Dropping mercury
b. Graphite electrode
c. Mercury pool
d. Rotating platinum electrode

14 How many lone pair of electrons are there in EDTA?

a. Two
b. Four
c. Six
d. Eight

15 Given examples are Aprotic solvents EXCEPT.

a. Benzene
b. Hexane
c. Toluene
d. Ketones

16 When crystals are close together during crystal growth is called as _____.

a. Surface adsorption
b. Occlusion
c. Mixed crystal formation
d. Mechanical entrapment

17 Which of the following exhibit different color in oxidized and reduced forms?

a. Ferroin
b. Phenolphthalein
c. Starch
d. Methyl red

18 Ksp < [Na+] [Cl-] indicates _____.

a. Saturated solution
b. No precipitation
c. Precipitation occurs
d. Supersaturated solution

19 0.2 % w/v Methyl Red solution in dioxin shows Colour change:

a. Yellow to Red
b. Yellow to blue
c. Yellow to green
d. Purple red to pale green

20 The number of moles of solute dissolved per 1000 g (1kg) of solvent is known as _____.

a. Molarity
b. Formality
c. Molality
d. Normality

Q. II	Answer any two questions. **(Any 2)**	**20**
1	Explain neutralization curve for weak acid and strong base. Write a brief note on non-aqueous titrations.	**10**
2	Explain the following terms: (i) Primary Standard (ii) Secondary Standard (iii) Precision (iv) Pharmacopoeia (v) Significant figures.	**10**
3	What is redox titration. Enlist types of redox titration and explain any two in detail.	**10**

Q. III	Answer any seven questions **(Any Seven)**	**35**
1	Explain in detail Mohr's method.	**5**
2	Write a short note on (i) Masking and Demasking reagents (ii) pM indicators.	**5**
3	Explain the Fajan's method used for determination of end point in precipitation titration.	**5**
4	Write a note on Cerimetry.	**5**
5	Enlist the types of conductometric titration. Give its advantages, Disadvantages and applications	**5**
6	Define Reference electrode. Enlist types of it and write a note on Saturated Calomel electrode (SCE).	**5**
7	Write a construction and working of dropping mercury electrode (DME) with neat labelled diagram.	**5**
8	Classify errors and give the methods for error minimization.	**5**
9	What volume of 0.1 M HCl solution would be required to neutralize 50 ml of 0.1M NaOH? Calculate pH at the start of titration and after adding 10 ml, 50 ml and 60 ml of titrant.	**5**