GUJARAT BOARD CLASS 12 CHEMISTRY SAMPLE PAPER-SET 3

Part – A : Time : 1 hour / Marks : 50
Part – B : Time : 2 hours / Marks 50

(Part – A)

Time : 1 Hour] **[Maximum Marks : 50**

1. ReO_3 possess conductance and appearance like that of ____

   (a) Al (b) B (c) Cu (d) Pt

2. There are approximately ____ schottky defects in one mole of NaCl crystal at room temperature.

   (a) 106 (b) 104 (c) 102 (d) 108

3. Total volume of atoms present in a face centred cubic unit cell of a metal is

   (a) $16/3\ \pi r^3$ (b) $20/3\ \pi r^3$ (c) $24/3\ \pi r^3$ (d) $12/3\ \pi r^3$

4. What is the product of reaction between excess xenon and fluorine at 673 K temperature?

   (a) XeF_2 (b) XeF_4 (c) XeF_6 (d) Not given

5. In which of the following Sulphur dioxide is not used?

   (a) In purification of sugar (b) In preparation of synthetic fibres

   (c) To bleach wool and silk (d) As solvent to dissolve inorganic substance

6. How much ozone proportion is responsible for headache and suffocation?

   (a) more than 100 ppm (b) less than 100 ppm

   (c) more than 70 ppm (d) more than 90 ppm

7. Which solvent is use for cellulose?

   (a) Organic solvents (b) Water

   (c) Ammonical cupric hydroxide (d) None of these

Which disease caused by vitamin B_{12}?

(a) Scurvy (b) Sterility (c) Pernicious anemia (d) Loses of hair

9. Which amino groups are present in proline amino acid?

(a) Primary (b) Secondary (c) Tertiary (d) Quarternary

10. Which protein is present in muscle?

(a) Caretine (b) Myocene (c) Insulin (d) Albumine

11. For elementary reaction, which of the following is correct?

(a) Order of reaction > Molecularity (b) Order of reaction ≠ Molecularity

(c) Order of reaction = Molecularity (d) Order of reaction < Molecularity

12. Which of the following statements is incorrect for Arrhenius rate constant equation?

(a) It gives quantitative idea about K and T.

(b) As T increases K is increasing and A is decreasing

(c) As Ea increases K is increasing

(d) If Ea = 0 then K = A

13. In the reaction A B, if the concentration of A is doubled then the reaction rate increases by 1.59 times, then what will be the order of reaction?

(a) 2 / 3 (b) 3 / 2 (c) $(1.59)^2$ (d) 1.59

14. Which is the correct formula to get specific conductivity?

(a) Observed conductance / Cell constant

(b) Observed conductance x Cell constant

(c) Cell constant / Observed conductance

(d) None of these

15. The correct discharging reaction in Ni-Cd cell is

(a) $Cd + 2Ni(OH)_2 + H_2O$ $CdO + 2Ni(OH)_3$

(b) $Cd + 2Ni(OH)_3$ $CdO + H_2O + 2Ni(OH)_2$

(c) $2Cd + O_2$ $2CdO$

(d) $2CdO$ $2Cd + O_2$

16. How much current required to get 1/2 mole 'Ni' metal from the $NiSO_4$ solution?

(a) 2 F (b) 1 F (c) 0.5 F (d) 4 F

17. Which reaction takes place at cathode in mercury cell?

(a) $Zn(Hg) + 2OH^-$ $ZnO_{(s)} + H_2O + 2e^-$

(b) $HgO + H_2O + 2e^-$ $Hg_{(l)} + 2OH^-$

(c) $HgO + H_2O + e^-$ $Hg + 2OH^-$

(d) $Zn + 2OH^- + 2e^-$ $ZnO + 2H_2O$

18. 0.5 M glucose solution is iso-osmotic with which of the following solutions?

(a) 0.10 M NaCl (b) 0.05 M NaCl (c) 0.25 M NaCl (d) 1 M NaCl

19. Which of the following aqueous solution has the highest boiling point having concentration 0.02 M?

(a) Urea (b) NaCl (c) $Na_2SO_{4(aq)}$ (d) $K_4[Fe(CN)_6]$

20. Presently which content is used by sea divers?

(a) 11.7 % He, 56.2 % N_2 and 32.1 % O_2

(b) 11.7 % N_2, 56.2 % O_2 and 32.1 % He

(c) 11.7 % He, 56.2 % N_2 and 32.1 % He

(d) 11.7 % He, 56.2 % N_2 and 32.1 % O_2

21. Impurity of which metal is present in sapphire?

(a) Cd (b) Cr (c) Mn (d) Hg

22. Zinc is known as _____ on commercial basis.

(a) Spelter (b) Ore (c) Retort (d) Mud

23 Which substances are used in aerosol mixtures of insecticide substance?

(a) Freon – 22 (b) $CClF_3$ (c) CCl_2F_2 (d) all of these

24. Chlorobenzene + Methyl chloride Na metal / Dry ether ?

(a) Bi phenyl (b) o – chlorotoluene (c) p – chlorotoluene (d) Toluene

25. Which of the following compound is not chiral?

(a) 1-chloro-2-methyl pentane (b) 2 – chloropentane

(c) 1 – chloropentane (d) 3 – chloro – 2- pentane

26. Decide the correct order of C – X bond strength.

(a) $CH_3Cl > CH_3Br > CH_3F > CH_3I$ (b) $CH_3F < CH_3Cl < CH_3Br < CH_3I$

(c) $CH_3I > CH_3F > CH_3Cl > CH_3Br$ (d) $CH_3F > CH_3Cl > CH_3Br > CH_3I$

27. Among the following ethers, which one will produce methyl alcohol on treatment with hot concentrated hydroiodic acid?

(a) $CH_3 – CH(CH_3) – CH_2 – O – CH_3$ (b) $CH_3 – C(CH_3)_2 – O – CH_3$

(c) $CH_3 – CH_2 – CH(CH_3) – O – CH_3$ (d) $CH_3 – CH_2 – CH_2 – CH_2 – O – CH_3$

28. Aspirin is known as

(a) Acetyl salicylic acid (b) Phenyl salicylate

(c) Acetyl salicylate (d) Methyl salicylic acid

29. Consider the following reaction.

Benzoyl chloride $Pd – BaSO_4 / H_2$ A

(a) Benzoic acid (b) Chlorobenzene (c) Benzaldehyde (d) Acetophenone

30. Which is not a oil/water emulsion?

(a) Vanishing cream (b) Lipid particles in milk

(c) Cold cream (d) None of these

31. $SO_{2(g)} + 2H_2S_{(g)}$ $3S_{(s)} + 2H_2O_{(l)}$ which will be the method to obtain Sulphur sol by reaction shown above?

(a) Double decomposition (b) Oxidation (c) Reduction (d) Hydrolysis

32. In which method separation of inert gases on activated charcoal used as adsorbent?

(a) Chromatography (b) Titration (c) Dewar (d) Emulsifier

33. Which of the following is the correct order of radii of La^{+3}, Ce^{+3}, Pm^{+3}, Yb^{+3}?

(a) $La^{+3} < Ce^{+3} < Pm^{+3} < Yb^{+3}$ (b) $Yb^{+3} < Pm^{+3} < Ce^{+3} < La^{+3}$

(c) $La^{+3} = Ce^{+3} < Pm^{+3} < Yb^{+3}$ (d) $Yb^{+3} < Pm^{+3} < La^{+3} < Ce^{+3}$

34. In electronic configuration of which of the following elements, d-orbitals are half filled?

(a) Cr (b) Mo (c) Tc (d) Mn

(A) only a and b (B) only b and c (C) only a and d (D) All

35. State the percentage of carbon in medium carbon steel?

(a) 0.2 % to 0.3 % (b) 0.3 % to 0.6 % (c) 0.6 % to 1 % (d) More than 1%

36. Which ionic pair from the following is coloured in aqueous solution?

(a) Sc^{+3}, Ti (b) Sc^{+3}, Co^{+2} (c) Ni^{+2}, Cu^{+} (d) Ni^{+2}, Ti^{+3}

37. What is the primary valency of metal ion in the complex $[Co(en)_2Cl_2]NO_3$?

(a) 4 (b) 6 (c) 2 (d) 3

38. By which of the following poisoning of lead in the body can be removed?

(a) ptn (b) EDTA (c) pn (d) OX^{-2}

39. Which of the following complex ion does not possess tetrahedral shape?

(a) $[MnO_4]^{-}$ (b) $[Ni(CO)_4]$ (c) $[Ni(CN)_4]^{-2}$ (d) $[Cu(NH_3)_4]^{+2}$

40. Ketone reacts with dihydric alcohol and forms cyclic ketal. It takes place in presence of which reagent?

(a) Dry HCl(g) (b) p-toluene sulphonic acid (c) Only a (d) a and b both

41. The common name of structure HOOC – $(CH_2)_2$ – COOH is

(a) Malonic acid (b) Succinic acid (c) Glutamic acid (d) Adipic acid

42. 3-Methylpent-3-en-2-one NaOCl A + B

(a) Sodium -2 – methylbut -2 –enoic acid + methyl chloride

(b) Sodium -2 – methylbut – 2 – enoate + trichloro methane

(c) Sodium – 2 – methylbut – 2 – enoic acid + trichloro methane

(d) Sodium - 2 – methylbut – 2 – enoate + methyl chloride

43. Which of the following statement is wrong for Acetonitrile?

(a) It is very weak basic compound. (b) It has fine fragrant smell.

(c) It is poisonous compound. (d) It is the most dipolar compound.

44. Propane Fuming HNO_3 / 673 K ?

(a) Nitromethane (b) Nitroethane (c) Nitropropane (d) All of above

45. What is tincture of iodine?

(a) 2-3 % solution of iodine in alcohol-water (b) Dilute solution of boric acid

(c) It is the mixture of chloroxylenol and Terpinol

(d) It is the solution of bithionol in water.

46. Which one is unstable at cooking temperature?

(a) Saccharin (b) Sucrolose (c) Alitame (d) Aspartame

47. The monomer of Glyptal is

(a) Ethylene glycol and Terpthalic acid (b) Ethylene glycol and Isophthalic acid

(c) Ethylene glycol and pthalic acid (d) Ethylene glycol and Adipic acid

48. Benzene $\xrightarrow[\text{Anhyd. } AlCl_3 \text{ / CuCl}]{CO, HCl}$ Benzaldehyde

What is the name of above reaction?

(a) Stephen reaction (b) Rosenmund reaction (c) Gatterman-Koch (d) Etard reaction

49. Which of the following compound is purine base?

(a) Cytosine (b) Thiamine (c) Adenine (d) Uracil

50. Which polymer is used to prepare cabinet of radio T. V. and fridge?

(a) PVC (b) Polystyrene (c) Orlon (d) Terylene

PART – B

Section : A

- **Answer the following questions 1 to 8 in brief. Each of two marks. [16]**

1. Describe the Hall-Heroult method.

Or

1. Give the molecular formula of following ore: (i) Malachite (ii) Siderite (iii) Bauxite and (iv) Calamine

2. Write the anhydride of HNO_2 and HNO_3 and Give its properties.

Or

2. Discuss the properties and structure of white phosphorous.

3. Write the only steps for the preparation of sulphuric acid by Contact process.

4. Discuss the catalytic properties of transition metals.

5. Write a short note on "Cellulose".

6. Give the information about semisynthetic polymer substance.

7. Discuss the preparation and uses of Polystyrene.

8. Explain: "Non-narcotic analgesic drugs".

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Section : B

- **Answer the following questions in detail. Each of three marks. [18]**

9. (i) How many defects exists in the arrangement of constituent particles of 7.45 g KCl? [K = 39, Cl = 35.5]

   (ii) A compound has a bcc structure in which O^{-2} ion are located at the corner of cube, B^{+} ion at the center of cube and A^{+} ion occupy ¼ part of tetrahedral void. Derive the formula of above crystal structure.

10. Differentiate: Electrochemical cell and Electrolytic cell

Or

How much Cl2 is obtained from NaCl solution, by passing 2 ampere current for 30 min?

11. Give conversion: (i) Nitrobenzene from aniline and (ii) Phenyl isocyanide from chlorobenzene

12. Explain the bimolecular substitution reaction with example.

13. Reaction preparation for (i) Phenyl acetate (ii) Anisole and (iii) Benzene from phenol.

14. What is colloid? Explain the type of colloid basis of nature of interaction between dispersing phase and dispersion medium.

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Section : C

- **Answer the following essay type questions in detail. Each of four marks. [16]**

15. 0.85 % $NaNO_3$ solution undergo 90 % dissociation at 27°C temperature. What is the osmotic pressure of the solution?

16. Half life of Ra^{226} is 1620 years. How many α – particles observed every minute of 0.001 gm Ra^{226} every Ra^{226} center is free by α – particles.

Or

16. Explain : Endothermic and Exothermic reactions by drawing graphs of potential energy and reaction co-ordinates.

17. What is isomerism? State its different types. Explain geometrical isomerism giving examples.

18. Explain nucleophilic addition reaction followed by elimination of a molecule of water for aldehyde and ketones.