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12th QUARTERLY CHEMISTRY MODEL QUESTION PAPER

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SAIVEERA ACADEMY - WE CARE FOR YOUR FUTURE**XII CHEMISTRY****QUARTERLY MODEL QUESTION PAPER****Marks: 70****Time : 3 Hours****Note : Draw diagrams and write equations wherever necessary****SECTION – I****Note : (i) Answer all the questions.****15x1=15****(ii) Choose the most appropriate answer from the given four alternatives**

1. In the extraction of aluminium from alumina by electrolysis, cryolite is added to

- a) Lower the melting point of alumina
b) Remove impurities from alumina
c) Decrease the electrical conductivity
d) Increase the rate of reduction

2. In diborane, the number of electrons that accounts for banana bonds is

- a) six
b) two
c) four
d) three

3. Assertion : bond dissociation energy of fluorine is greater than chlorine gas

Reason: chlorine has more electronic repulsion than fluorine

- a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) Both assertion and reason are true but reason is not the correct explanation of assertion.
c) Assertion is true but reason is false.
d) Both assertion and reason are false.

4. In acid medium, potassium permanganate oxidizes oxalic acid to

- a) oxalate
b) Carbon dioxide
c) acetate
d) acetic acid

5. Conjugate base for Bronsted acids H_2O and HF are

- a) OH^- and H_2FH^+ , respectively
b) H_2O and F^- , respectively
c) OH^- and F^- respectively
d) H_3O^+ and H_2F^+ , respectively

6. The radius of an atom is 300pm, if it crystallizes in a face centered cubic lattice, the length of the edge of the unit cell is

- a) 488.5pm
b) 848.5pm
c) 884.5pm
d) 484.5pm

7. Assertion: rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.

Reason: rate constant also doubles

- a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) Both assertion and reason are true but reason is not the correct explanation of assertion.

- c) Assertion is true but reason is false.
 d) Both assertion and reason are false.
8. The co-ordination number of CsCl is
 a) 3 b) 4 c) 6 d) 8
9. The solid in which its constituents have an orderly arrangement extending over a long range
 a) Ionic solid b) Molecular solids c) Crystalline solids d) Amorphous solids
10. Which one act as a molecular sieve for the removal of permanent hardness of water
 a) Inosilicates b) Tecto silicates c) Amphiboles d) Zeolites
11. At high temperature and pressure a mixture of CO and Hydrogen gives
 a) ethyl alcohol b) propanol c) methyl alcohol d) 2 butanol
12. When copper is heated with conc. HNO_3 it produces
 a) $\text{Cu}(\text{NO}_3)_2$ and N_2O b) $\text{Cu}(\text{NO}_3)_2$ and NO_2
 c) $\text{Cu}(\text{NO}_3)_2$ and NO d) $\text{Cu}(\text{NO}_3)_2$ NO and N_2O
13. The incorrect statement regarding structure of ozone is
 a) Bond angle is less than 120° b) It is linear.
 c) The two oxygen- oxygen bond length ozone are identical d) Both (b) and (c)
14. The hydrogen ion concentration of a buffer solution consisting of a weak acid and its salts is given by
 a) $[\text{H}^+] = \frac{K_a[\text{acid}]}{[\text{salt}]}$ b) $[\text{H}^+] = K_a[\text{salt}]$ c) $[\text{H}^+] = K_a[\text{acid}]$ d) $[\text{H}^+] = \frac{K_a[\text{salt}]}{[\text{acid}]}$
15. In Hall-Herold process, _____ act as an anode.
 a) Carbon blocks b) Hydrogen c) Copper rods d) Zinc rods

SECTION – II

Answer any six questions and question number **23** is compulsory.

6 x 2 = 12

16. Give the basic requirement for vapour phase refining.
 17. Write a note on Fisher tropsch synthesis
 18. What are the Limitations of Arrhenius concept?
 19. Write about Test to differentiate alcohol and phenols
 20. How will you convert phenylmethanal into benzoin?
 21. What is Chromyl chloride test?
 22. Give a reason to support that sulphuric acid is a dehydrating agent.
 23. Derive integrated rate law for a zero order reaction $\text{A} \rightarrow \text{product}$

24. The composition of a sample of wurtzite is $\text{Fe}_{0.93}\text{O}_{1.00}$ what % of Iron present in the form of Fe^{3+} ?

SECTION – III

Answer any six questions and question number 29 is compulsory.

6 x 3 = 18

25. (A) Predict the conditions under which

(i) Aluminium might be expected to reduce magnesia. (ii) Magnesium could reduce alumina.

26. Derive a Relation between pH and pOH

27. Give two equations to illustrate the chemical behaviour of phosphine.

28. What is lanthanide contraction and what are the effects of lanthanide contraction?

29. Explain the following with an example (i) Swern oxidation (ii) Schotten-Baumann reaction

30. Write a short notes on (i) Dows process (ii) Williamson synthesis

31. Differences between rate and rate constant of a reaction

32. What are the properties of interhalogen compounds?

33. Explain Cannizzaro reaction with mechanism

SECTION – IV

Answer all the questions.

5 x 5 = 25

34. Describe the structure of diborane.

Or

(i) Explain how ores are concentrated by magnetic separation method

(ii) Difference between roasting and calcination

35. (i) Compare lanthanides and actinides.

(ii) What are the uses of potassium dichromate (any two)

Or

Describe the preparation of nitric acid by Ostwald Process

36.(i) Explain pseudo first order reaction with an example.

(ii) Define average rate and instantaneous rate.

Or

Determine packing efficiency Face centered cubic unit cell

37. Derive an expression for Ostwald's dilution law

Or

Explain how will you distinguish Primary, Secondary, Tertiary alcohols by Lucas test

38.(i) An alkene (A) on ozonolysis gives propanone and aldehyde (B). When (B) is oxidised (C) is obtained. (C) is treated with Br_2/P gives (D) which on hydrolysis gives (E). When propanone is treated with HCN followed by hydrolysis gives (E). Identify A, B, C, D and E.

Or

(ii) Find the pH of a buffer solution containing 0.20 mole per litre sodium acetate and 0.18 mole per litre acetic acid. for acetic acid is $K_a = 1.8 \times 10^{-5}$

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One Marks Key

1. a) Lower the melting point of alumina
2. c) four
3. d) Both assertion and reason are false.
4. b) Carbon dioxide
5. c) OH^- and F^- respectively
6. c) 884.5pm
7. c) Assertion is true but reason is false.
8. d) 8
9. c) Crystalline solids
10. d) Zeolites
11. c) methyl alcohol
12. b) $\text{Cu}(\text{NO}_3)_2$ and NO_2
13. b) It is linear.
14. a) $[\text{H}^+] = \frac{K_a[\text{acid}]}{[\text{salt}]}$
15. a) Carbon blocks

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