Ts12C

Tenkasi District Common Examinations
Common Half Yearly Examination - December 2022

Standard - 12
CHEMISTRY

Time Allowed:3.00 Hours Maximum Marks: 70

PART - I **15×1=15**

I Answer all the questions.
Choose the most suitable answer from the given four alternatives:

1. Cupellation is a process used for the refining of
   a) Silver b) Lead c) Copper d) Iron
2. Which of the following is used as moderator in nuclear reactors?
   a) $_6C^{14}$ b) $_7N^{15}$ c) $_5B^{10}$ d) $_8O^{16}$
3. Structure of $XeOF_4$
   a) linear b) square planar
   c) square pyramidal d) pyramidal
4. Colour of UO_2^{2+} ion is
   a) Red b) Green c) Yellow d) Blue
5. What is the oxidation state of Fe in $[FeF_6]^{4-}$
   a) +4 b) +3 c) +2 d) 0
6. The ratio of close packed atoms to tetrahedral hole in cubic packing is
   a) 1:1 b) 1:2 c) 2:1 d) 1:4
7. After 2 hours a radioactive element becomes (1/16) of original amount then the half life is
   a) 60 min b) 120 min c) 30 min d) 15 min
8. pH of seawater is
   a) 12 b) 8 c) 9 d) 2
9. Which of the following metal is used as sacrificial anode?
   a) Ni b) Fe c) Ti d) Mg
10. Fog is colloidal solution of
    a) solid in gas b) gas in gas c) liquid in gas d) gas in liquid
11. $HO - CH_2 - CH_2 - OH$ on heating with periodic acid gives
    a) Methanoic acid b) Glyoxal c) Methanal d) CO_2
12. Which of the following is used in the manufacture of thermosoftening plastic Perspex?
    a) Acetaldehyde b) Acetone c) Formaldehyde d) Propanone
13. Which one of the following is known as oil of mirbane?
    a) Benzene b) Nitro benzene c) Toluene d) Nitro aniline
14. Nucleoside + Phosphate → ?
    a) Deoxy ribose sugar b) Nucleotide
    c) Nucleic acid d) Furanose
15. Which one of the following is Antihistamines?
    a) Cetirizine b) Ranitidine c) Isoflurane d) Ampicillin

PART - II

II Answer any six questions. Question Number 20 is compulsory. **6×2=12**

16. Give the limitations of Ellingam diagram.
17. What are interhalogen compounds? Give examples.
18. What is Zeiglar-Natta Catalyst? Write the chemical reaction where it is used.
19. What are elementary reactions? Give the differences between order and molecularity of a reaction.
20. Calculate the extent of hydrolysis and the pH of 0.1 M ammonium acetate. Given that $K_a = K_b = 1.8 \times 10^{-5}$.
21. State kohlraush law.
22. What is Electro osmosis?
23. Explain the kolbe's reaction.
24. Differentiate thermoplastic and thermosetting plastic.

PART - III

III Answer any six questions. Question Number 31 is compulsory. **6×3=18**

25. Explain the principle of electrolytic refining with an example.
26. Complete the following reaction.
    i) $XeF_6 + H_2O \rightarrow$
    ii) $KClO_3 \xrightarrow{\Delta}$
    iii) $AgNO_3 + PH_3 \rightarrow$
27. Explain why Cr^{2+} is strongly reducing, while Mn^{3+} is strongly oxidizing?
28. Draw the figure to show the splitting of d-orbitals in an octahedral Crystal field.
29. Distinguish hexagonal close packing and cubic close packing.
30. Explain the common ion effect with an example.
31. A copper electrode is dipped in 0.1m Copper Sulphate solution at 25°C. Calculate the electrode potential of copper. [Given : $E^{o}Cu^{2+}/Cu = 0.34V$].
32. How will you prepare the following.
    i) Benzaldehyde → Cinnamic acid
    ii) Benzaldehyde → benzal aniline
    iii) Benzaldehyde → Malachite green dye
33. Explain the peptide linkage.

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PART - IV

Answer all the questions. **5×5=25**

34. a) How the gold ore is concentrated by cyanide Leaching? (2)
    b) Give the uses of silicones. (3)

(OR)

    c) How Cl_2 is prepared in the laboratorty? (2)
    d) Write the reason for the anamolous behaviour of Nitrogen. (3)

35. a) Differentiate Lanthanoids and actinoids.
    b) Explain chromyl chloride test.

(OR)

    c) An element has bcc structure with the cell edge of 288pm. The density of the element is 7.2 gcm^{-3}. How many atoms are present in 208g of the element? (3)
    d) Write the following of the complex $[Cr(PPh_3)(CO)_5]$ central metal atom, ligand, co-ordination number and IUPAC name.

36. a) Write short notes on Mercury button cell. (3)
    b) Write a note on Sacrificial protection. (2)

(OR)

    c) Distinguish between chemical and Physical absorption. (3)
    d) Give any 2 uses of emulsion. (2)

37. a) Explain how to differentiate ethanol, propan-2-ol, 2-methyl, propan-2-ol by Victor-meyer's test. (3)
    b) Explain Swern oxidation. (2)

(OR)

    c) How will you prepare primary amine by Gabriel phthalimide synthesis. (2)
    d) Complete the following reactions:
    i) $C_6H_5NO_2 \xrightarrow{Sn/Hcl}$?
    ii) $C_6H_5NO_2 \xrightarrow{Zn/Hcl}$?
    iii) $C_6H_5NO_2 \xrightarrow{Zn/NaOH}$?

38. a) Explain the Mechanism of Aldol condensation reaction. (3)
    b) Give any 2 test to identify the aldehydes. (2)

(OR)

    c) Write a note on denaturation of proteins. (3)
    d) What are hormones? Give examples. (2)
