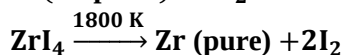
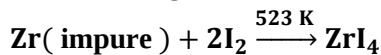


PART - I

1. The phenomenon observed when a beam of light is passed through a colloidal solution is :

- (a) Coagulation (b) Cataphoresis
(c) Tyndall effect (d) Electrophoresis

2. The following set of reactions are used in refining Zirconium. This method is called as ____



- (a) Zone refining (b) Liquation
(c) Mond's process (d) Van Arkel process

3. Match the following : -

- (1) Emulsion (i) Whipped Cream
(2) Gel (ii) Ink
(3) Foam (iii) Cream
(4) Sol (iv) Butter

- (a) (1) - (iv), (2) - (iii), (3) - (ii), (4) - (i)
(b) (1) - (iii), (2) - (i), (3) - (ii), (4) - (iv)
(c) (1) - (ii), (2) - (i), (3) - (iv), (4) - (iii)
(d) (1) - (iii), (2) - (iv), (3) - (i), (4) - (ii)

4. The pyrimidine bases present in DNA are:

- (a) Cytosine and Thiamine
(b) Cytosine and Adenine
(c) Cytosine and Uracil
(d) Cytosine and Guanine

5. The pH of an aqueous solution is zero. The solution is:

- (a) Neutral (b) Slightly acidic
(c) Basic (d) Strongly acidic

6. On reacting with neutral Ferric Chloride, Phenol gives:

- (a) Dark green colour (b) Red colour
(c) No colouration (d) Violet colour

7. IUPAC name for the amine $\text{H}_2\text{N} - \text{CH}_2 - (\text{CH}_2)_4 - \text{CH}_2 - \text{NH}_2$

- (a) Heptane-1, 7-diamine
(b) Hexamethylene diamine
(c) Hexane-1, 6-amine
(d) Hexane-1, 6-diamine

8. The number of electrons that have a total Charge of 9650 Coulombs is:

- (a) 6.022×10^{22} (b) 6.22×10^{23}
(c) 6.022×10^{-34} (d) 6.022×10^{24}

9. Which of the following is not sp^2 hybridised?

- (a) Fullerene (b) Graphite
(c) Diamond (d) Graphene

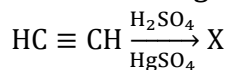
10. $\text{CH}_3 - \text{CHO} + \text{CO} \xrightarrow{\text{Rh/Ir complex}} ?$

- (a) Poly propylene
(b) Butan-1-al
(c) Acetic acid
(d) Acetate

11. The crystal with a metal deficiency defect is:

- (a) ZnO (b) NaCl
(c) KCl (d) FeO

12. In the following reaction,

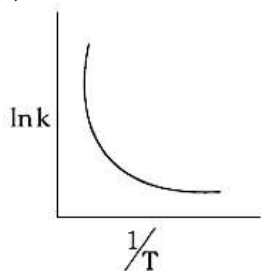


Product 'X' will not give:

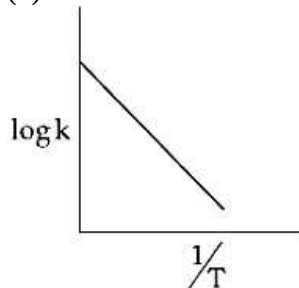
- (a) Iodoform test
- (b) Tollen's test
- (c) Fehling solution test
- (d) Victor Meyer test

13. Among the following graphs showing variation of rate constant with temperature (T) for a reaction, the one that exhibits Arrhenius behaviour over the entire temperature range is

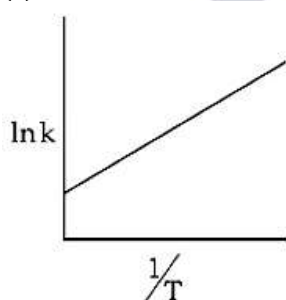
(a)



(b)



(c)



(d) Both (b) and (c)

14. Which one of the following compounds is not formed?

- (a) XeF₂ (b) XeOF₄
- (c) NeF₂ (d) XeO₃

15. In K₄[Fe(CN)₆], the co-ordination number of Fe²⁺ is ____.

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

PART - II

16. Give the uses of Borax.

17. Why 'd' block elements exhibit variable oxidation state?

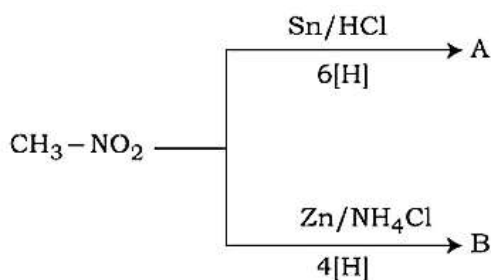
18. Define unit cell.

19. State Ostwald's dilution law.

20. Define equivalent conductance.

21. Mention any two factors that affect electrolytic conductance.

22. What is meant by Electro Osmosis?
 23. Write a short note on peptide bond.
 24. From the following reaction, identify A and B.



PART – III

25. What is meant by term "Coordination Number"? What is the Coordination Number of atoms in a bcc structure?
 26. What are interhalogen compounds? Give two examples.
 27. Give the difference between double salts and coordination compounds.
 28. Mention the factors responsible for the anomalous behavior of the first element of p-block.
 29. State Faraday's laws of electrolysis.
 30. How are the following conversions effected?
 (i) ethylene glycol $\rightarrow$ acetaldehyde
 (ii) glycerol $\rightarrow$ acrolein
 31. Give the tests for carboxylic acid group.
 32. Give any three differences between DNA and RNA.
 33. Classify the following into covalent, molecular, ionic and metallic solids.
 (i) Diamond (ii) Brass
 (iii) NaCl (iv) Naphthalene
 (v) Glucose (vi) SiO_2

PART - IV

34. (a) Explain Froth flotation process.
 OR
 (b) (i) Explain the bleaching action of Sulphur dioxide
 (ii) Write any two uses of Helium.
 35. (a) (i) What are interstitial compounds?
 (ii) Calculate the number of unpaired electrons in Ti^{3+} , Mn^{2+} and calculate the spin only magnetic moment.
 OR
 (b) (i) What are the limitations of VB theory?
 (ii) Based on the VB theory, explain why $[\text{Ni}(\text{CN})_4]^{2-}$ is diamagnetic.
 36. (a) (i) Write two differences between rate and rate constant of a reaction.
 (ii) Derive integrated rate law for a zero order reaction $\text{A} \rightarrow \text{product}$.
 OR
 (b) Find the pH of a buffer solution containing 0.20 mole per litre sodium acetate and 0.18 mole per litre acetic acid. K_a for acetic acid is 1.8×10^{-5} .
 37. (a) How will you convert benzaldehyde into the following compounds?
 (i) Benzoin
 (ii) Cinnamic acid
 (iii) Malachite green
 OR
 (b) (i) Differentiate primary, secondary and tertiary alcohols using Luca's test.
 (ii) Give the uses of diethyl ether.
 38. (a) Describe adsorption theory of catalysis.
 OR
 (b) A compound 'A' of molecular formula $\text{C}_2\text{H}_3\text{N}$ on reduction with $\text{Na}(\text{Hg})/\text{C}_2\text{H}_5\text{OH}$ gives 'B' of molecular

formula C_2H_7N which undergoes carbylamine test. Compound 'B' on reaction with nitrous acid gives compound 'C' of molecular formula C_2H_6O by liberating nitrogen. Identify A, B and C and write the reactions involved.

