

HIMACHAL PRADESH BOARD OF SCHOOL EDUCATION, DHARAMSHALA
MODEL QUESTION PAPER - CHEMISTRY
CLASS - 10+2

Time Allowed : 3 hours

MM : 60

Instructions :

1. All questions are compulsory.
2. Marks for each question are indicated against it.
3. Question No. 1 to 12 are multiple choice questions and carry one mark each.
4. Question No. 13 to 21 carry two marks each.
5. Question No. 22 to 26 carry three marks each.
6. Question No. 27 to 29 carry five marks each.
7. Internal choice is given wherever applicable.

- Q.1. The empty space within hcp arrangement is (1)
(a) 34% (b) 47% (c) 32% (d) 26%
- Q.2. Which of the following modes of expressing concentration is independent of temperature (1)
(a) Normality (b) Molarity (c) Molality (d) Formality
- Q.3. The units of specific conductance are (1)
(a) Ohm⁻¹ Cm⁻¹ (b) Ohm⁻¹ Cm⁻²
(c) Ohm⁻¹ (d) Cm⁻¹
- Q.4. Which of the following has maximum flocculation values (1)
(a) Na⁺ (b) Pb²⁺ (c) Al³⁺ (d) Ba²⁺
- Q.5. Oleum is (1)
(a) H₂SO₄ (b) H₂S₂O₆ (c) H₂S₂O₇ (d) H₂S₂O₈
- Q.6. Oxidation state of Ni in complex [Ni(CO)₄] (1)
(a) 2 (b) Zero (c) 3 (d) 4
- Q.7. A primary alkylhalide would prefer to undergo (1)
(a) SN² reaction (b) SN¹ reaction
(c) Elimination reaction (d) None of these
- Q.8. Dehydration of tertiary alcohol with Cu at 573K gives (1)
(a) Alcohol (b) Benzene (c) Alkene (d) Aldehyde
- Q.9. IUPAC name of CHO is (1)
 $\begin{array}{c} | \\ \text{CHO} \end{array}$
(a) Ethanedial (b) Ethanedioic acid
(c) Ethanal (d) Acetal
- Q.10. Which of the following is used to preserve biological specimen (1)
(a) Iodine (b) Formaldehyde (c) Acetaldehyde (d) Acetic Acid
- Q.11. The Pot of SHE is assumed as (1)
(a) Zero volt (b) 1 volt (c) 1.10 volt (d) None of these
- Q.12. An anti Pyretic is (1)
(a) Quinine (b) Paracetamol (c) Luminal (d) Piperazine
- Q.13. What are analgesics and Anti Pyretic drugs? Give one difference with example. (2)
- Q.14. Show that in case of 1st order reaction, time required for 99% completion of reaction is twice the time required for the completion of 90% of reaction. (2)
- Q.15. Explain Hardy Schulze rule. (2)

Reel
C. Raj Kumar (Masterson)

- Q.16. Draw a well labelled diagram for electro refining of copper. (2)
- Q.17. Draw structures of (1+1)
- (a) P_4O_6 (b) XeO_3
- Q.18. Using valence bond theory predict shape and magnetic character of $[NiCl_4]^{2-}$ (2)
- Q.19. Complete reactions (1+1)
- (i) $H_5H_3CHO + HCN \rightleftharpoons$
- (ii) $C_6H_5CHO + NH_2OH \rightleftharpoons$
- Q.20. Write short note on following (1+1)
- (i) Coupling reaction
- (ii) Schotten Baumann reaction
- Q.21. (i) Why chloroform is stored in dark coloured bottles? (1+1)
- (ii) Write IUPAC name of tertiary butyl bromide.
- Q.22. (i) Derive an expression for the determination of molar mass of non volatile solute from relative lowering in vapour pressure. (2+1)
- (ii) Define the term azeotrope.

OR

How is HN_3 is Manufactured by Ostwald process? Write the steps in valued. (3)

- Q.23. Explain why (3)
- (i) No chemical compounds of helium are known.
- (ii) the majority of noble gas compounds are those of xenon.
- (iii) Inter halogen compounds are more reactive than halogens.
- Q.24. (i) Write short note on Swart reaction. (1+2)
- (ii) Why Haloarenes are ortho and para directing in nature?
- Q.25. (i) Give the syntheses of nylon 66. (1+1+1)
- (ii) Give method of preparation of Teflon.
- (iii) What does PMMA stands for? How is it prepared?
- Q.26. (i) What are anti pyritics? (1+1+1)
- (ii) Define the term chemotherapy.
- (iii) What is peptide linkage?
- Q.27. (i) Write the reaction involved in electrochemical theory of rusting. (2+2+1)
- (ii) Calculate molar conductivity at infinite dilution (Λ_m^∞) for $CaCl_2$ and $MgCl_2$ from following data: $\Lambda_m^\infty (S\text{cm}^2 \text{mol}^{-1})$: $Ca^{2+} = 119.0$, $Mg^{2+} = 106.0$, $Cl^- = 76.3$, $SO_4^{2-} = 160.0$
- (iii) What are the units of equivalent conductance?

OR

- (i) Discuss the working of fuel cell giving reactions that are taking place in it.
- (ii) A sugar syrup of weight 214.2g contains 34.2g of sugar ($C_{12}H_{22}O_{11}$) calculate the mole fraction of sugar. (2+2+1)
- (iii) Under what condition Van't Hoff's factor 'i' is equal to unity.
- Q.28. (i) Why do transition elements? (1+1+1+1+1)
- (a) form alloys
- (b) form interstitial compounds.
- (c) form complexes.
- (ii) What happens when acidified $K_2Cr_2O_7$ reacts with?
- (a) Potassium nitrite (KNO_2)
- (b) Hydrogen sulphide (H_2S)

Beel
Raj Kumar Mahtani

- Q.29. (i) What are F centre ?
(ii) Define the term leaching.
(iii) What is molarity of pure water ?
(iv) What is gold number ?
(v) What are the units of K for 2nd order.

(1+1+1+1+1)

Roll
(Raj Kumar Mastana)