

Final Paper (27 February 2017)

Class XI

Paper- CHEMISTRY

(Set-B)

Time: 3hrs.

M.M. 70

- i) All questions are compulsory.
 - ii) Q 1 – 5 carry 1 mark each.
 - iii) Q 6 – 10 carry 2 mark each.
 - iv) Q11 – 22 carry 3 marks each.
 - v) Q 23 carry 4 mark.
 - vi) Q24 – 26 carry 5 marks each.
- Q1. Define Modern periodic law.
- Q2. Find the number of sigma and pi bond in given compound.

- Q3. Define boyle's temperature.
- Q4. Calculat the oxidation number of Mn in $KMNO_4$
- Q5. Write the conjugate acid for the Bronsted bases NH_2^- .
- Q6. Explain water-gas shift reaction.

OR

Why $H_2 O_2$ is stored in dark colour bottles.

- Q7. K_2CO_3 cannot be prepared by Solvay process. Why?
- Q8. Is Boric acid is a protic acid?
- Q9. Define carbocation. Discuss their order of stability.
- Q10. Explain the following:
- i) Wurtz Reactions
 - ii) Markonikove's rule
- Q11. Assign the position of the element having atomic no. (Period, group & block) (i) 29 (ii) 17
- Q12. Using the equation of states $PV=nRT$ show that at a given temperature density of a gas is proportional to gas pressure P.
- Q13. What will be happen to equilibrium of the reaction
- i) Addition of N_2
 - ii) Addition of NH_3
 - iii) Increase of temperature
- Q14. Balance the given redox reaction in acidic medium

- Q15. Define Temporary and permanent hardness of water? Why soap does not form leather with hard water?
- Q16. In Carius method of estimation of halogen, 0.15g of an organic compound give .12gm of AgBr. Find the percentage of bromine in the compound. (Molar mass of Ag= 108, Br = 88)
- Q17. Draw cis and trans isomers of but -2-ene. Which isomer has high melting point and why?

OR

Explain (i) Inductive effect (ii) Electrophile (iii) Nucleophiles

Q18. In what ways Lithium show similarities with Magnesium. What this relationship is called?

Q19. What happens when

- Boric acid is added in H₂O
- BF₃ is reacted with NH₃
- Boric acid is heated

Q20. In the given electrochemical cell.

- Which electrode is negatively charged
- Which electrode is positively charged
- Write Individual reactions at each electrode.

Q21. a) The concentration of hydrogen ion in a sample of soft drinks is 3.8×10^{-3} M. What is its pH.

b) Define common ion effect.

Q22. Give reasons:

- alkali metals not found in nature
- Be and Mg do not impart colour to flame
- K and Cs are used in photoelectric cells

Q23. Ashutosh was getting late for the office. He tried to sip boiling hot coffee from a cup. He felt very uncomfortable. His wife immediately brought a plate and asked him to sip the coffee from the plate. Ashutosh followed the advice and did not face any problem.

- Why was Ashutosh feeling uncomfortable?
- How did sipping coffee from a plate was more comfortable?
- How did wife help Ashutosh?
- What is the value associated with it?

Q24. i) Calculate the formal charge of each atom in NO_3^-

ii) Draw molecular orbital diagram of O₂. Find bond order and predict magnetic behaviour.

OR

- Define H-Bonding? Explain its types.
- Discuss the hybridization of C₂H₄ with the help of orbital diagram.

- Q25. a) An alkene A on Ozonolysis give mixture of Ethanal and Pentan-3-one. Write IUPAC name of Alkene obtained from Ozonolysis.
- b) In Duma's method for estimation of nitrogen 0.3gm of an organic compound gave 50ml of nitrogen collected at 300k temperature and 715 pressure. Calculate the percentage composition of nitrogen in the compound. (Aqueous tenston at 300K = 15mm)

OR

- a) Why is nitric acid added to sodium extract before adding AgNO_3 for testing halogen
- b) Write structure of
- Cyclohex-2-en-1-ol
 - 2 chlorohexane
 - 4-Ethyl-1-fluoro-2-nitriobenzene
- Q26. i) If B-Cl bond has a dipole moment, explain they BCl_3 molecule has zero dipole moment.
- ii) Write short note on
- Catenation
 - Inert pair effect
 - Silicones

OR

- i) Give reasons:
- Aluminum wire is used to make transmission cables.
 - BCl_3 is an electron deficient compound.
- ii) Explain structure of diborane