

Chemistry Model Paper

Intermediate Ist Year

Time: 3 Hrs.

Max.Marks: 60

SECTION - A

NOTE: Answer all questions.

$10 \times 2 = 20$

1. Define mole and calculate the number of molecules present in 1.12×10^{-7} cc of a gas S.T.P
2. Which of the gases diffuses faster among N_2 , O_2 and CH_4 . Why?
3. What is conjugate acid-base pair? Give example.
4. What is 'Syngas'? The calorific value of producer gas is lower than that of syngas. Why?
5. Write the balanced equations for the reaction between
 - i) Na_2O_2 and water
 - ii) K_2O and water
6. What happens when magnesium metal is burnt in air? Give equation.
7. Diamond has high melting point. Why?
8. Which oxides cause Acid rain? Give the P^H of acid rain.
9. Define the terms contaminant and sink.
10. Write the IUPAC names of the following compounds.
 - i) $CH_2 = CH - C \equiv C - CH_3$
 - ii) $CH_3 - CO - CH_3$

SECTION - B

NOTE: Answer any Six of the following.

$6 \times 4 = 24$

11. State and explain Graham's law of diffusion.
12. Chemical analysis of a carbon compound gave 10.06% carbon, 89.1% chlorine and 0.84% Hydrogen. Calculate the empirical formula of the compound.
13. State and explain the Hess's law of constant heat summation.
14. Which salts are responsible for temporary hardness? Explain the

removal of temporary hardness by Clark's method.

15. Write any one method of preparation of Diborane and discuss its structure.

16. What are homogeneous and heterogeneous equilibria? Give examples.

17. Explain functional group isomerism and position isomerism with one example each.

18. Explain the Friedel-Crafts alkylation and Nitration of benzene with equations.

SECTION - C

NOTE: Answer any two questions.

2 × 8 = 16

19. What are quantum numbers? Give their significance.

20. What is meant by Hybridization? Explain sp , sp^2 and sp^3 Hybridization by taking organic compounds as example.

21. What is a periodic property? How the following properties vary in a group and in a period?

- Atomic radius
- Ionisation enthalpy
- Electro negativity
- Electron gain enthalpy.