

## FIRST REVISION TEST - 2024

B

Standard XI

Reg.No. 

CHEMISTRY

Time : 3.00 hrs

Part - I

Marks : 70

15 x 1 = 15

I. Choose the correct answer:

1. Which of the following compound has percentage of carbon same as that in ethylene ( $C_2H_4$ ) ?

- a) propene                      b) ethyne                      c) benzene                      d) ethane

2. The energies  $E_1$  and  $E_2$  of two radiations are 25 eV and 50 eV respectively. The relation between their wavelength i.e.,  $\lambda_1$  and  $\lambda_2$  will be

- a)  $\frac{\lambda_1}{\lambda_2} = 1$                       b)  $\lambda_1 = 2\lambda_2$                       c)  $\lambda_1 = \sqrt{25 \times 50} \lambda_2$                       d)  $2\lambda_1 = \lambda_2$

3. Assertion : Helium has the highest value of Ionization energy among all the elements known.

Reason : Helium has the highest value of the electron affinity among all the elements known.

- a) both assertion and reason are true, and reason is correct explanation for the assertion  
b) both assertion and reason are true, but reason is not correct explanation for the assertion  
c) Assertion is true and the reason is false  
d) both assertion and reason are false

4. Which one of the following is radioactive isotopes?

- a) protium                      b) deuterium                      c) tritium                      d) both (a) and (b)

5. In case of alkali metal halides, ionic character increases in the order

- a)  $MF < MCl < MBr < MI$                       b)  $MI < MBr < MCl < MF$   
c)  $MI < MBr < MF < MCl$                       d) None of these

6. Which of the following is the correct expression for the equation of state of Vander Waals gas?

- a)  $\left(P + \frac{a}{n^2v^2}\right)(V - nb) = nRT$                       b)  $\left(P + \frac{na}{n^2v^2}\right)(V - nb) = nRT$   
c)  $\left(P + \frac{an^2}{v^2}\right)(V - nb) = nRT$                       d)  $\left(P + \frac{n^2a^2}{v^2}\right)(V - nb) = nRT$

7. The value of the lattice energy (U) of the following reaction  $Na^+_{(g)} + Cl^-_{(g)} \rightarrow NaCl_{(s)}$ 


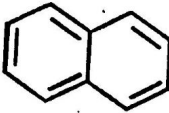
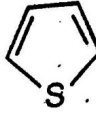

- a)  $U = 0$                       b)  $U = +788 \text{ KJ mol}^{-1}$   
c)  $-788 \text{ KJ mol}^{-1}$                       d)  $U = \pm 788 \text{ KJ mol}^{-1}$

8. In the equilibrium  $2A_{(g)} \rightleftharpoons 2B_{(g)} + C_{2(g)}$ the equilibrium concentration of A, B and  $C_2$  at 400K are  $1 \times 10^{-4} \text{ M}$ ,  $2.0 \times 10^{-3} \text{ M}$ ,  $1.5 \times 10^{-4} \text{ M}$  respectively. The value of  $K_c$  for the equilibrium at 400K is

- a) 0.06                      b) 0.09                      c) 0.62                      d)  $3 \times 10^{-2}$

## XI Chemistry

2

9. Which of the following concentration terms are independent of temperature?  
 a) molality      b) molarity      c) mole fraction      d) (a) and (c)
10. Which of the following is diamagnetic?  
 a)  $O_2$       b)  $O_2^{2-}$       c)  $O_2^+$       d) none of these
11. Ortho and para nitrophenol can be separated by  
 a) azeotropic distillation      b) destructive distillation  
 c) steam distillation      d) can't be separated
12. -I effect is shown by  
 a) Cl      b) Br      c) both (a) and (b)      d)  $CH_3$
13. Which one of the following is non-aromatic?  
 a)       b)       c)       d) 
14. The raw material For Rasching process  
 a) chloro benzene      b) phenol      c) benzene      d) anisole
15. Which of the following is natural and human disturbance in Ecology?  
 a) forest fire      b) floods      c) acid rain      d) green house effect

## Part - II

II. Answer any 6 questions. (Q.No.24 is compulsory)

6 x 2 = 12

16. Define equivalent mass.
17. State Heisenberg's uncertainty principal.
18. Give the uses of gypsum.
19. State Boyle's law.
20. State Le-Chatelier principle.
21. Write the limitations of Henry's law.
22. What is functional isomerism and give the example.
23. What is electrophile and nucleophile?
24.  $CH_3 - CH = CH_2 + HBr \xrightarrow{\text{Peroxide}} X$  Find the major product X.

## Part - III

III. Answer any 6 questions. (Q.No.33 is compulsory)

6 x 3 = 18

25. Difference between ortho and para hydrogen.
26. Explain the diagonal relationship.
27. Calculate the oxidation state of the underlined elements.  
 a)  $K\underline{O}_2$       b)  $H_2\underline{S}O_4$       c)  $\underline{O}F_2$
28. Write the relationship between  $C_p$  and  $C_v$  for an ideal gas.
29. Write the molecular orbital diagram for CO molecule.
30. What is green house effect?
31. How will you prepare benzene from acetylene?
32. Write Wurtz fittig reaction.



3

## XI Chemistry

33. If an automobile engine burns petrol at a temperature of  $816^{\circ}\text{C}$  and if the surrounding temperature is  $21^{\circ}\text{C}$ . Calculate its maximum possible efficiency.

## Part - IV

## IV. Answer all the questions.

5 x 5 = 25

34. a) Balance the following equation by oxidation number method.  
 $\text{KMnO}_4 + \text{H}_2\text{C}_2\text{O}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + \text{MnSO}_4 + \text{CO}_2 + \text{H}_2\text{O}$

(OR)

- b) i) Derive de-Broglie equation. (3)  
 ii) Write the limitations of Bohr's atom model. (2)
35. a) i) Write the biological importance of magnesium and calcium. (3)  
 ii) Write the uses of hydrogen. (2)

(OR)

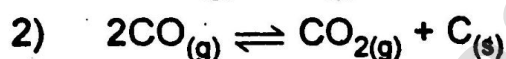
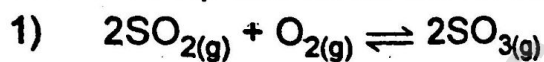
- b) Derive the values of critical constant in terms of Vander Waals constants.

(5)

36. a) i) Write the characteristics of internal energy. (3)  
 ii) What is entropy? (2)

(OR)

- b) i) Write the  $K_p$  and  $K_c$  for the following reaction. (3)

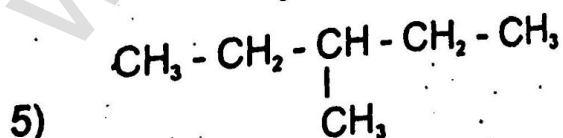
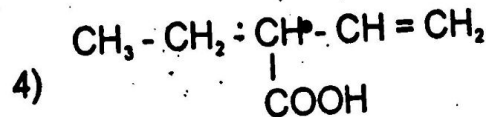
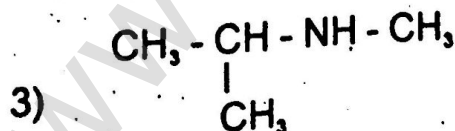
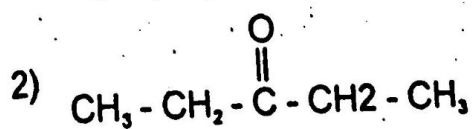
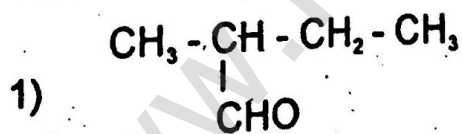


- ii) What is isotonic solution? (2)

37. a) i) Write notes on Thin layer chromatography. (3)  
 ii) Write the ozonolysis of acetylene. (2)

(OR)

- b) Write the IUPAC name of the following :



38. a) Write the mechanism of  $\text{SN}_1$  and  $\text{SN}_2$ . (5)

(OR)

- b) i) What is air pollution? (2)  
 ii) How will you control air pollution? (3)

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