

FML

**FIRST MID TERM TEST - 2024****11** - Std**CHEMISTRY**

--	--	--	--	--	--

Time : 1.30

Marks : 40

**PART - I****I Answer all the questions :-****Choose the correct answer with correct option code :-** 10 X 1 = 10

- Which of the following compounds has/have percentage of Carbon same as that in Ethylene ( $C_2H_4$ )  
a) Propene      b) Ethyne      c) Benzene      d) Ethane
- The number of water molecules in a drop of water weighing 0.018g is .....  
a)  $6.022 \times 10^{26}$       b)  $6.022 \times 10^{23}$   
c)  $6.022 \times 10^{20}$       d)  $9.9 \times 10^{22}$
- Splitting of spectral lines in an Electric field is called .....  
a) Zeeman effect      b) Shielding effect  
c) Compton effect      d) Stark effect
- The maximum number of Electrons in a sub shell is given by the expression  
a)  $2n^2$       a)  $2l + 1$       c)  $4l + 2$       d) none of these
- Use of hot air balloon in sports at meteorological observation is an application of  
a) Boyle's law      b) Newton's law  
c) Kelvin's law      d) Brown's law
- Among the following methods which is not applicable for liquefaction of gases  
a) Linde's method      b) Claude method  
c) Adiabatic process      d) Vander Waals method
- In an adiabatic process, Which of the following is true?  
a)  $q = w$       b)  $q = 0$       c)  $\Delta E = q$       d)  $P\Delta V = 0$
- Which of the following is not a thermodynamic function?  
a) Internal energy      b) Enthalpy  
c) Entropy      d) Frictional energy
- The IUPAC name of the compound  $CH_3 - CH = CH - C \equiv CH$  is  
a) Pent - 4 - Yn - 2 - ene      b) Pent - 3 - en - 1 - Yne  
c) Pernt - 2 - en - 4 - Yne      d) Pent - 1 - Yn - 3 - ene



10. How many cyclic and acyclic isomers are possible for the molecular formula  $C_3H_6O$ ?
- a) 4                      b) 5                      c) 9                      d) 10

### PART - II

**II Answer any three from the following.**

**Q.no 15 is compulsory :-**

3 X 2 = 6

11. Define Avogadro number
12. State Gay Lussac's law
13. Write the third law of thermodynamics.
14. What is homologous series?
15. How many radial nodes for 2s, 4p, 5d and 4f orbitals exhibit? How many angular nodes?

### PART - III

**III Answer any three from the following.**

**Q.no 20 is compulsory:-**

3 X 3 = 9

16. What is the empirical formula of the following?
  - (i) Fructose ( $C_6H_{12}O_6$ ) found in honey
  - (ii) Caffeine ( $C_8H_{10}N_4O_2$ ) a substance found in tea and coffee.
17. State Paul's exclusion principle.
18. What is Joule Thomson effect?
19. What is meant by a functional group? Identify the functional group in the following compounds. a) Acetaldehyde      d) Dimethyl ether
20. What is the usual definition of entropy? What is the unit of entropy?

### PART - IV

**IV Answer all the questions :-**

3 X 5 = 15

21. a) i) Define relative atomic mass.      ii) Calculate the gram equivalent mass of  $H_2SO_4$ . (OR)
  - b) Explain quantum numbers.
22. a) Derive the values of critical constants in terms of Vander Waal's Constants. (OR)
  - b) Give the general characteristics of organic compounds.
23. a) Write various statements of second law of thermodynamics. (OR)
  - b) Explain column chromatography. (CC)