

Class : 11Register
Number**COMMON QUARTERLY EXAMINATION 2023 - 24**

Time Allowed : 3.00 Hours]

CHEMISTRY

[Max. Marks : 70

PART - I

- I. Answer the following:** **15x1=15**
- The number of water molecules in a drop of water weighing 0.018 g is
a) 6.022×10^{26} b) 6.022×10^{23} c) 6.022×10^{20} d) 9.9×10^{22}
 - Which one of the following is used as a standard for atomic mass.
a) ${}_6\text{C}^{12}$ b) ${}_7\text{C}^{12}$ c) ${}_6\text{C}^{13}$ d) ${}_6\text{C}^{14}$
 - Two electrons occupying the same orbital are distinguished by
a) azimuthal quantum number b) Spin quantum number
c) magnetic quantum number d) orbital quantum number
 - What is the maximum numbers of electrons that can be associated with the following set of quantum number? $n = 3, l = 1$ and $m = -1$.
a) 4 b) 6 c) 2 d) 10
 - What would be the IUPAC name for an element with atomic number 222?
a) bibibium b) bididium c) didibium d) bibibium
 - Which of the following elements will have the highest electro negativity?
a) Chlorine b) Nitrogen c) Cesium d) Fluorine
 - Water gas is
a) $\text{H}_2\text{O}_{(g)}$ b) $\text{CO} + \text{H}_2\text{O}$ c) $\text{CO} + \text{H}_2$ d) $\text{CO} + \text{N}_2$
 - Tritium nucleus contains.
a) $1P + 0n$ b) $2P + 1n$ c) $1P + 2n$ d) none
 - The value of the gas constant 'R' is
a) $0.082 \text{ dm}^3\text{atm}$ b) $0.987 \text{ cal mol}^{-1}\text{k}^{-1}$ c) $8.3 \text{ J mol}^{-1}\text{k}^{-1}$ d) $8 \text{ erg mol}^{-1}\text{k}^{-1}$
 - Maximum deviation from ideal gas is expected from
a) $\text{CH}_{4(g)}$ b) $\text{NH}_{3(g)}$ c) $\text{H}_{2(g)}$ d) $\text{N}_{2(g)}$
 - In an isothermal reversible compression of an ideal gas the sign of q , Δs and W are respectively.
a) +, -, - b) -, +, - c) +, -, + d) -, -, +
 - The values of ΔH and ΔS for a reaction are respectively 30 KJ mol^{-1} and 100 KJ mol^{-1} . Then the temperature above which the reaction will become spontaneous is
a) 300 K b) 30 K c) 100 K d) 20°C
 - Solubility of carbondioxide gas in cold water can be increased by
a) increase in pressure b) decrease in pressure
c) increase in volume d) none of these
 - The isomer of ethanol is
a) acetaldehyde b) dimethylether c) acetone d) methyl carbinol
 - The geometrical shape of carbocation is
a) Linear b) tetrahedral c) planar d) pyramidal

PART - B

- II. Answer any six questions. Question No. 24 is compulsory.** **6x2=12**
- Define equivalent mass.

KK/11/Che/1

17. Define modern periodic law.
18. Write chemical equation for the reaction of hydrogen gas and chlorine gas.
19. Give the mathematical expression that relates gas volume and moles.
20. Give Kelvin statement of second law of thermodynamics.
21. State Le-chatelier principle.
22. Identify the functional group in the following compounds.
 - a) acetaldehyde
 - b) Oxalic acid
23. Explain electromeric effect.
24. How many orbitals are possible for $n = 4$?

PART - C

III Answer any six questions. Question No. 33 is compulsory.

6x3=18

25. Distinguish between oxidation and reduction.
26. State and explain Pauli's exclusion principle.
27. Give reason Ionisation potential of N is greater than that of O.
28. Explain the exchange reactions of deuterium.
29. State Boyle's law.
30. What are spontaneous reactions? What are the conditions for the spontaneity of a process?
31. State law of mass action.
32. Explain inductive effect with suitable example.
33. Give the IUPAC name
 - i) CH_3OCH_3
 - ii) $(\text{CH}_3)_2\text{CH}-\text{CH}_2-\text{CH}(\text{CH}_3)-\text{CH}(\text{CH}_3)_2$

PART - D

IV Answer all the questions.

5x5=25

34. a) An organic compound present in vinegar has 40 % carbon, 6.6 % hydrogen and 53.4 % oxygen. Find the empirical formula of the compound.

(OR)

 b) Give the electronic configuration of Mn^{2+} , Cr^{3+} , Cu
35. a) i) Explain the diagonal relationship.
 - ii) What is screening effect.

(OR)

 b) Justify the position of hydrogen in the periodic table.
36. a) i) Aerosol cans carry warning of heating of the can why?
 - ii) What are ideal gases? In what way real gas differ from ideal gas?

(OR)

 b) List the characteristics of internal energy.
37. a) Derive the relation between K_p and K_c .

(OR)

 b) Derive K_p and K_c for the formation of ammonia.
38. a) Describe the classification of organic compounds based on their structure.

(OR)

 b) Explain paper chromatography.