

# 11<sup>TH</sup> CHEMISTRY TOP 100 QUESTIONS

## Unit-1

1. Calculate the empirical formula and molecular formula of a compound containing 76.6% carbon, 6.38% of hydrogen and rest oxygen. Its vapour density is 47. (b/b-42) (ipn : 247)
2. What do you understand by the term mole ? (ipn : 6 )
3. What is the empirical formula of the following ? (b/b-38)  
i) Fructose ( $C_6H_{12}O_6$ ) ii) Caffeine ( $C_8H_{10}N_4O_2$ )
4. Distinguish between oxidation and reduction. (b/b-30)
5. Define Gram equivalent mass. (b/b-28) (ipn : 8 )
6. Define relative atomic mass (b/b-26) (ipn : 4 )

## Unit-2

7. State Heisenber's Uncertainty Principle (ipn : 42 )
8. State Aufbau principle (ipn : 52 )
9. state hunds rule with example (ipn : 52)
10. What is exchange energy ? (ipn : 56 )
11. Write short note on four Quantum Number (ipn : 44 )
12. De Broglie equations (ipn : 41 )
13. Explain bhor atom model (ipn : 39 )
14. state and explain pauli's exclusion principle (ipn : 52 )

## Unit-3

15. Explain diagonal relationship (ipn : 90 )
16. Derive ionic radius using pauling's method. (ipn : 83 )
17. State Modern Periodic law (ipn : 73 )
18. Give the general electronic configuration of lanthanides and actinides (ipn : 78 )
19. Ionisation potential of nitrogen is greater than that of oxygen. explain by giving appropriate reason (ipn : 85 )
20. What are isoelectronic ions ? give example (b/b-25)
21. What is effective nuclear charge ? (ipn : 80 )

## Unit-4

22. Write the exchange reactions of Deuterium. (ipn : 105 )
23. How do you convert para hydrogen into ortho hydrogen. (ipn : 102 )
24. What is water-gas shift reaction ? (b/b-30) (in.p.no : 103 )
25. explain three types of covalent hydrides. (ipn : 113 )
26. How is tritium prepared ? (ipn : 104 )
27. What are the uses of heavy water ? (b/b-33) (in.p.no : 111 )
28. What are isotopes ? Write the names of isotopes of Hydrogen. (ipn : 101)

## Unit-5

29. Write the similarities between beryllium and aluminium (ipn : 140 )
30. Mention the uses of Plaster of Paris and preparation (b/b-33) (in.p.no : 148 & 147)
31. How is bleaching powder prepared ? (ipn : 145 )
32. Mention the uses of gypsum (b/b-33) (in.p.no : 148 )
33. why sodium hydroxide is much more water soluble than sodium chloride? (b/b-26)

## Unit-6

34. Boyles's law, (ipn : 160 ) Charles law (ipn : 162 )
35. Gay-lussac's law (ipn : 164 )
36. Avogadro's hypothesis (ipn : 165 ) Graham's law, (ipn : 168 )
37. Derive ideal Gas equation (in.p.no : 165 )
38. Derive the values of Critical Constants in terms of vander Waals constants. (b/b-41) (in.p.no : 174 )
39. Distinguish between diffusion and effusion (b/b-37) (in.p.no : 168 )
40. State Dalton Law of partial pressures. (ipn : 166 )
41. State Joule-Thomson effect (in.p.no : 175 )
42. Mention the three methods used for liquefaction of Gases. (in.p.no : 175)

## Unit-7

43. calculate the entropy change during the melting of one mole of ice into water at  $0^\circ\text{C}$  enthalpy of fusion of ice is  $6008 \text{ J mol}^{-1}$ . (ipn : 213 )
44. Distinguish between extensive and intensive property. (ipn : 189 )
45. Explain the characteristics of internal energy. (ipn : 191 )
46. What is path and state function ? Give two examples. (ipn : 191 )
47. Derive the relation between enthalpy  $\Delta H$  and internal energy  $\Delta U$  for an ideal gas. (ipn : 197 )
48. Give any five characteristics of gibbs free energy ? (b/b-52)
49. state thermodynamics law  
i) zero thermodynamics law (ipn : 195 )  
ii) first thermodynamics law (ipn : 195 )  
iii) second thermodynamics law ( various statement) (ipn : 210 )  
iv) third thermodynamics law (ipn : 218 )
50. Hess's Law (ipn : 207) Lattice energy (ipn : 208 )

## Unit-8

51. Define -Le-Chatelier principle. b/b-32 (ipn : 16 )
52. Derive the relation between  $K_p$  and  $K_c$  for a general homogeneous gaseous reaction. b/b-39 (ipn : 6 )

53. Define reaction quotient. (ipn : 11 )  
54. State law of Mass action (b/b-34 ) (in.p.no :5 )  
55. The equilibrium concentrations of  $\text{NH}_3$ ,  $\text{N}_2$  and  $\text{H}_2$  are  $1.8 \times 10^{-2}\text{M}$ ,  $1.2 \times 10^{-2}\text{M}$  and  $3 \times 10^{-2}\text{M}$  respectively. Calculate the equilibrium constant for the formation of  $\text{NH}_3$  from  $\text{N}_2$  and  $\text{H}_2$  (ipn :15 )

**Unit-9**

56. State the term "isotonic solution" (b/b-37) (ipn : 56)  
57. write a limitation of Henry's law. (ipn : 40)  
58. Write the four colligative properties . (in.p.no : 49 )  
59. Define Osmotic Pressure. (in.p.no :55 )  
60. define molarity and molality and normality(ipn : 32 )

**Unit-10**

61. Discuss the formation of  $\text{O}_2$  and  $\text{N}_2$  molecule using MO Theory (in.p.no;100 )  
62. Define i) Bond length ii)Bond angle iii)Bond enthalpy . iv) bond order(May22) ( ipn : 76,77)  
63. What is hybridisation ? (ipn : 89 )  
64.what is sigma and pi bond ? (ipn : 87 )  
65. Explain the salient feature of Molecular Orbital theory. (ipn : 97 )

**Unit-11**

66. Describe the classification of organic compounds based on their structure . (ipn : 112 )  
67.explain characteristics of organic compounds. (ipn :111 )  
68. Write the structural formula for the following compounds . (ipn : 124 )  
(i) m-dinitro benzene  
(ii) p-dichloro benzene  
(iii) 1,3,5 trimethyl benzene  
69. Explain geometrical isomerism in 2-butene. (ipn :135 )  
70. explain paper chromatography(ipn : 153 )

**Unit-12**

71. What are nucleophiles and electrophiles ? give one example each (ipn : 164 )  
72. explain about inductive effect . ( ipn : 166 )  
73.Give example for the following types of organic reactions(ipn :173,171)  
i)  $\beta$ - elimination ii) electrophilic substitutions.  
74.Homolytic and heterolytic cleavage (ipn no : 162)  
75.oxidation and reduction reaction 173

**Unit-13**

76. How the aromatic character of a compound can be decided by Huckel's rule ? (ipn : 205 )  
77. Write short notes on Friedel Craft's Reaction. (in.p.no : 210 )

78. Explain the structure of Benzene (in.p.no : 207 )  
79. write Birch reduction . (ipn : 215 )  
80. Explain the different types of polymerisation in ethyne. (ipn : 204 )  
81. Write the reaction for conversion of acetylene to benzene.(ipn : 210 )  
82.benzene to BHC (ipn : 215 )  
83. Wurtz , (ipn : 185)  
84.write Markovnikoff's rule with example (ipn : 194 )  
85.what happens when ethylene is passed through cold dilute alkaline potassium permanganate .( ipn : 192)

**Unit-14**

- 86.. How is DDT prepared ? and give uses (ipn : 250 )  
87.Write note on Williamson's synthesis. (ipn : 234 )  
88.carbylamine reaction , chloropicrin , dow process(ipn :248,243 )  
89.SN1 SN2 reactions (ipn : 235 ) E1 ,E2 reaction (ipn : 237)  
90. fittig , Wurtz -fittig , (ipn : 244 )  
91.write short notes on the following i) Rasching process ii) Darzens Process (ipn : 242,231)  
92. Starting from  $\text{CH}_3\text{MgI}$  , how will you prepare the following ? (jul22)  
i) Acetaldehyde ii) Acetone iii) Ethyl acetate (ipn : 240,240,241 )  
93.Why chlorination of methane is not possible in dark ? (b/b-27)

**Unit-15**

94. What is green chemistry ? (ipn : 275 )  
95. Differentiate BOD and COD (b/b- 34 ) (in.p.no : 271 )  
96. define- acid rain (ipn :264 )  
97. Which is considered to be earth's protective umbrella ? why ?(b/b- 31 )  
98. What is green house effect ? Name the gases that cause green house effect (ipn:263 )  
99. What are Particulate Pollutants ? Give example (b/b-29) (in.p.no:265 )  
100. What is Eutrophication ? (in.p.no : 271 )

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