V11C

Virudhunagar District

Common Second Revision Test - 2025

Standard 11

CHEMISTRY

Time Allowed: 3.00 Hours | Maximum Marks: 70

PART - I

I. Choose the correct answer: **15×1=15**

1) What is the relative molecular mass of glucose?
   a) 180u b) 180g mol^{-1} c) 18u d) 180g
2) Time independent Schnodinger wave equation is
   a) $\hat{H}\psi = E\psi$ b) $\nabla^2\psi + \frac{8\pi^2 m}{h^2}(E+V)\psi = 0$
   c) $\frac{\partial^2\psi}{\partial x^2} + \frac{\partial^2\psi}{\partial y^2} + \frac{\partial^2\psi}{\partial z^2} + \frac{2m}{h^2}(E-V)\psi = 0$ d) all of these
3) In the sixth period the filling of valence electrons starts with 6s orbital followed by _____ orbitals.
   a) 4f, 5p and 6s b) 4f, 5d and 6p c) 4f, 6s and 5p d) 5d, 4f and 6p
4) Water is a
   a) basic oxide b) acidic oxide c) amphoteric oxide d) none of these
5) Among the following the least thermally stable is
   a) K_2CO_3 b) Na_2CO_3 c) $BaCO_3$ d) Li_2CO_3
6) The units of Vander Waals constant 'b' and 'a' respectively
   a) mol L^{-1} and L atm^2 mol^{-1} b) mol L and L atm mol^2
   c) mol^{-1} L and L^2 atm mol^{-2} d) none of these
7) For an isobaric process
   a) dT = 0 b) q = 0 c) dv = 0 d) dp = 0
8) The effect of catalyst on equilibrium is _____.
   a) favours forward reaction b) favours reverse reaction
   c) towards endothermic reaction d) no effect
9) 0.5 mole of ethanol is mixed with 1.5 moles of water. The mole fraction of ethanol in the above solution is _____.
   a) 0.5 b) 1.5 c) 0.25 d) 2.0
10) The electronegativity difference $(\chi_A - \chi_B)$ is equal to 1.7, then the bond A–B has _____.
   a) 50% ionic character b) more than 50% ionic character
   c) less than 50% ionic character d) none of the above
11) The Dextrorotatory compounds are represented as _____.
   a) L b) d c) M d) A
12) **Assertion** : Tertiary carbocations are generally formed more easily than primary carbocations ions.
   Reason : Hyper conjugation as well as inductive effect due to additional alkyl group stabilize tertiary carbonium ions.
   a) Both assertion and reason are true and reason is the correct explanation of assertion.
   b) Both assertion and reason are true but reason is not the correct explanation of assertion.
   c) Assertion is true but reason is false.
   d) Both assertion and reason are false.
13) What is the major product of addition of HBr to propene?
   a) 1-Bromo propane b) 1-Bromo butane
   c) 1-Bromo propene d) 2-Bromo propane
14) Which of the following reagent is helpful to differentiate ethylene dichloride and ethylidene chloride?
   a) Zn/methanol b) KOH/ethanol c) aqueous KOH d) $ZnCl_2$/con.HCl
15) Release of oxides of nitrogen and hydrocarbons into the atmosphere by motor vehicle is prevented by using _____.
   a) grit chamber b) scrubbers c) trickling filter d) catalytic convertors

PART - II

II. Answer any six questions. Question No. 24 is compulsory: **6×2=12**

16) What is meant by limiting reagents?
17) State Heisenbergs uncertainty principle.
18) Give an example for Ionic hydride and Covalent hydride.
19) What is path function? Give two examples.
20) Define reaction quotient.
21) 50g of tap water contains 20mg of dissolved solids. What is the TDS value in ppm?
22) How will you prepare ethane by Kolbe's eletrolytic method?
23) Mention any two methods of preparation of halo alkanes from alcohols.
24) If an automobile engine burns petrol at a temperature of 1089K and if the surrounding temperature is 294K. Calculate its maximum possible efficiency.

PART - III

II. Answer any six questions. Question No. 33 is compulsory: **6×3=18**

25) Calculate the oxidation number of underlined elements: (i) $\underline{C}O_2$ (ii) $H_2\underline{S}O_4$
26) Define electron affinity.
27) State Dalton law of partial pressure.
28) Write the formula to calculate the molar mass of a solute from relative lowering of vapour pressure values.
29) Describe the formation of HF molecule by orbital overlap.
30) What is meant by optical isomerism?
31) Give any three differences between nucleophiles and electrophiles.
32) What happens when ethylene is passed through cold dilute alkaline potassium permanganate?
33) The equilibrium concentrations of NH_3 and H_2 are 1.8×10^{-2} M, 1.2×10^{-2} M and 3×10^{-2} M respectively. Calculate the equilibrium constant for the formation of NH_3 from N_2 and H_2.

PART - IV

IV. Answer all the questions: **5×5=25**

34) a) i) What is Exchange energy?
ii) Write a note on principal quantum number.

(OR)

b) i) Define atomic radius.
ii) Explain diagonal relationship.

35) a) Discuss the similarities between Beryllium and Aluminium.

(OR)

b) i) State the First law of Thermodynamics.
ii) What are the conditions for the spontaneity of a process?

36) a) How will you determine the molar mass of a solute from osmotic pressure?

(OR)

b) i) Define Bond order.
ii) What are the salient features of VB theory?

37) a) i) What is meant by Homologus series?
ii) Give the structure for the following compounds.
(1) 3-methylpentane (2) 2-methylpropan-2-ol (3) Propanone

(OR)

b) Explain the formation of CO molecule using MO theory.

38) a) i) How does Huckel rule help to decide the aromatic character of a compound?
ii) Write the reaction for conversion of acetylene to benzene.

(OR)

b) Simplest alkene (A) reacts with HBr to form compound (B). Compound (B) reacts with ammonia to form compound (C) of molecular formula. C_2H_7N. Compound (C) undergoes carbylamine test. Identify (A), (B) and (C) and write the reactions.
