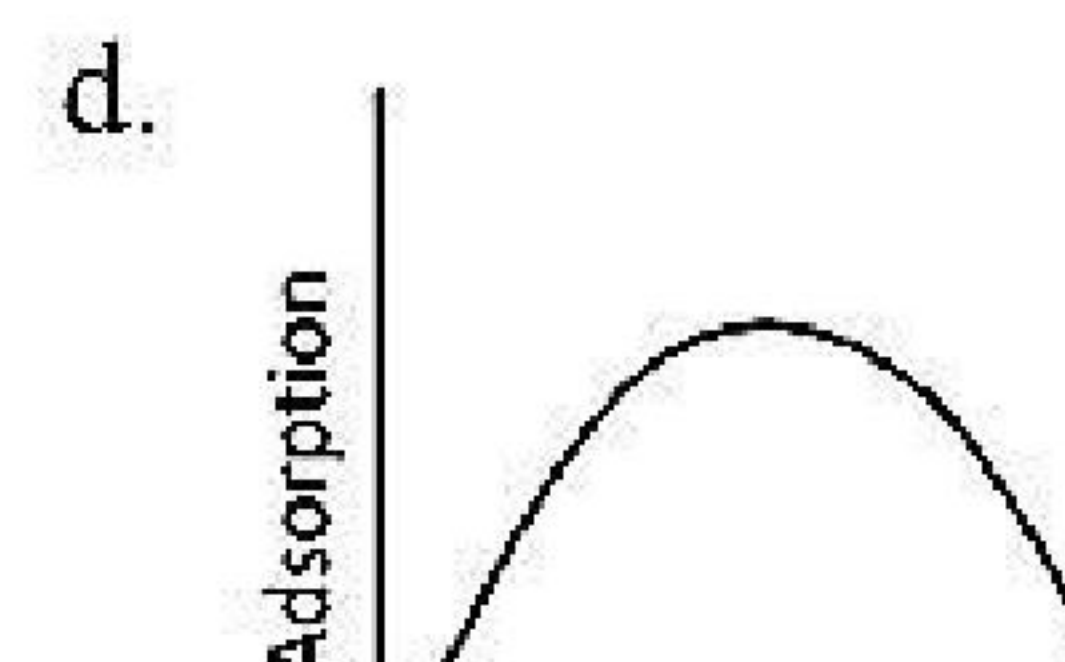
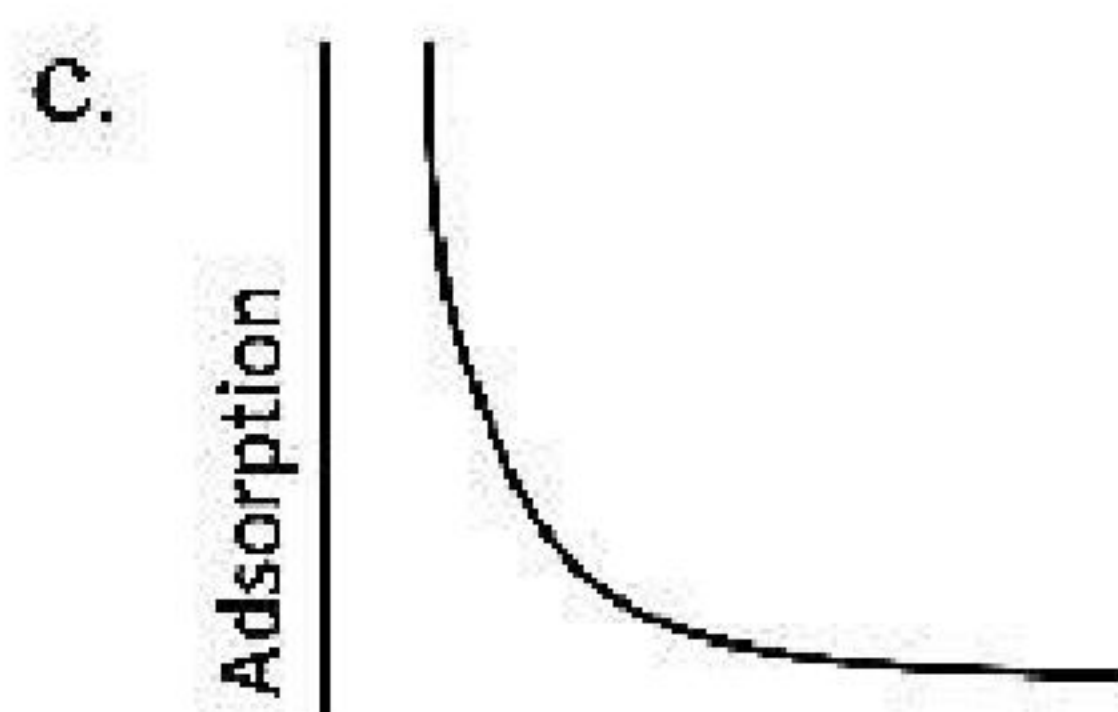
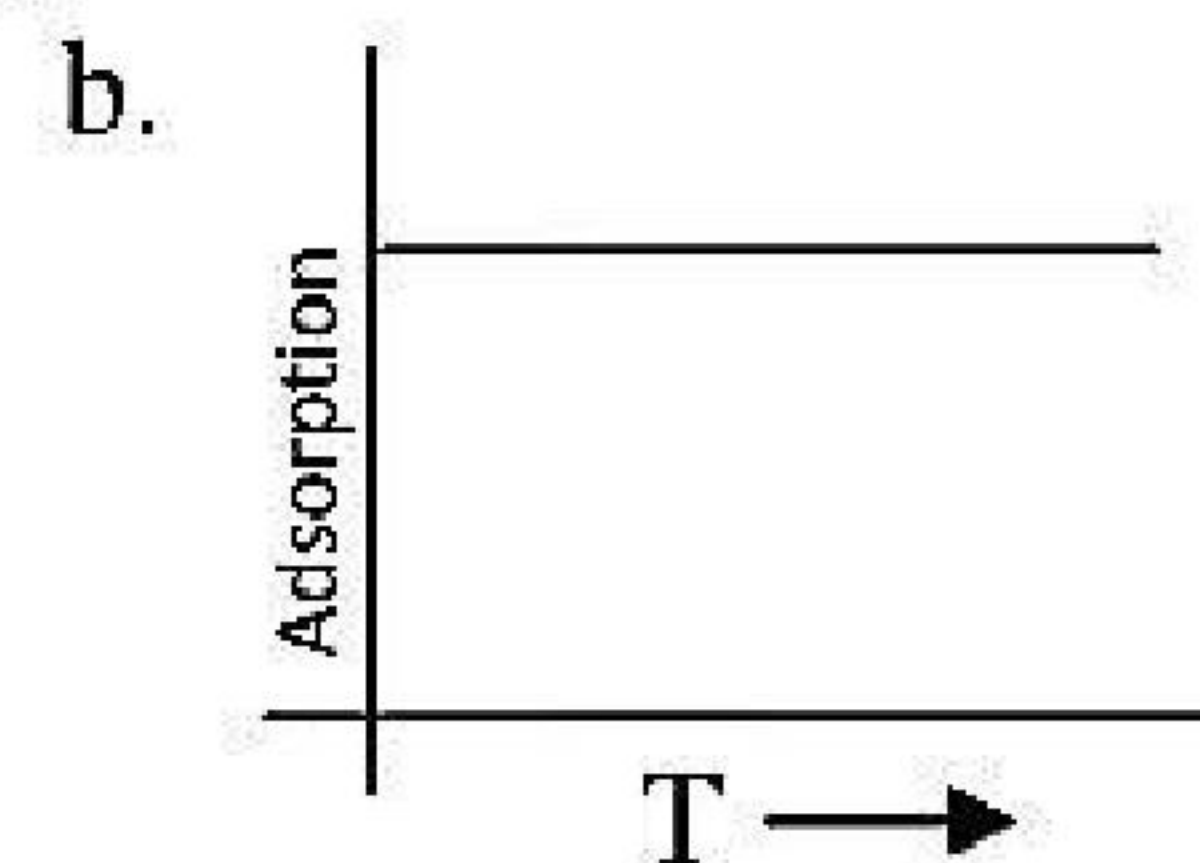
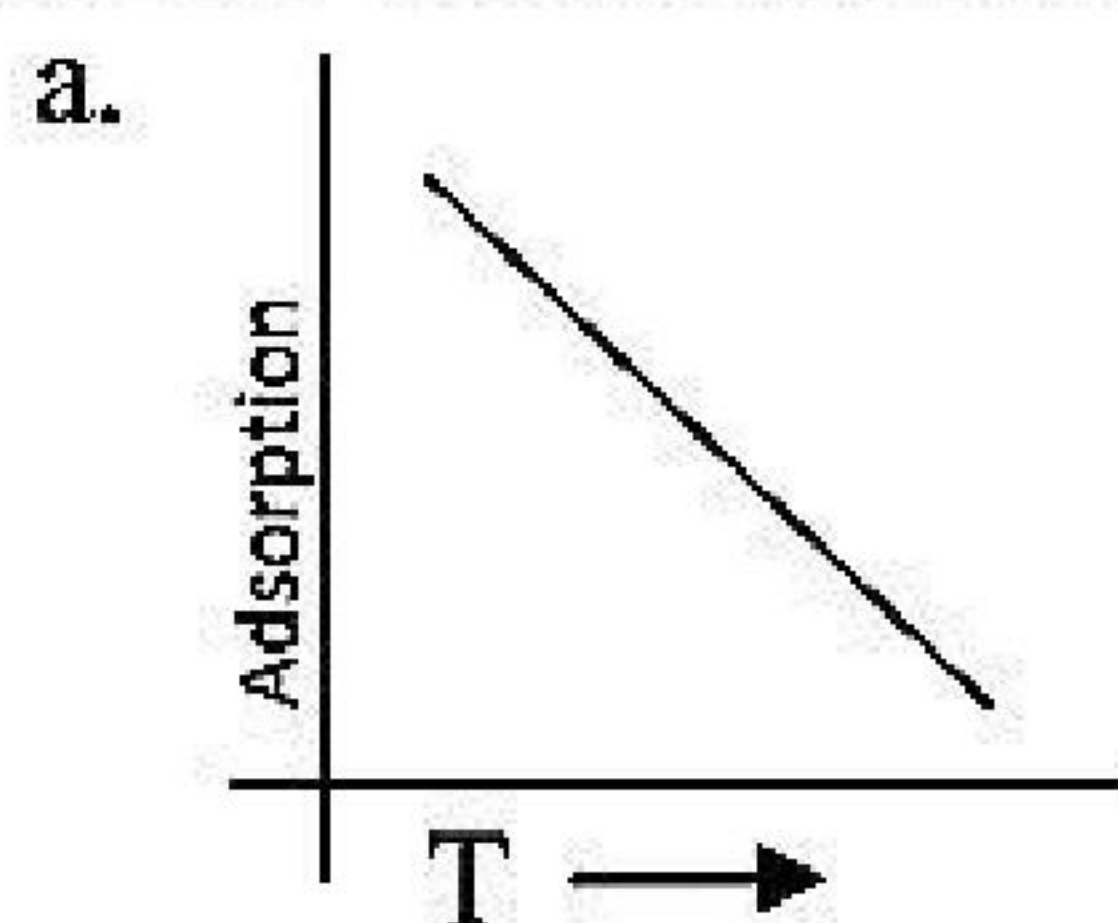


CHEMISTRY

QUESTION SET – 3

1. Charle's law is represented mathematically as
 - a. $PV = \text{constant}$
 - b. $V_1 = V_0(1 + \frac{273}{t})$
 - c. $V_t = V_0(1 + \frac{t}{273})$
 - d. $\frac{V_1}{V_2} = \frac{T_2}{T_1}$
2. The bond dissociation energy of H_2 , Cl_2 , and HCl are 104, 58, and 103 kcal mol⁻¹ respectively. The enthalpy of formation of HCl would be
 - a. -22 kcal mol⁻¹
 - b. -44 kcal mol⁻¹
 - c. +44 kcal mol⁻¹
 - d. +22 kcal mol⁻¹
3. From the given ions such as, Li^+ , K^+ , Ca^{2+} , Na^+ , which of the following is the strongest reducing reagent?
 - a. Na^+
 - b. Li^+
 - c. Ca^{2+}
 - d. K^+
4. Which of the following sets of quantum numbers is permissible for an electron in an atom?
 - (a) $n=2, l=1, m=0, s=+1/2$
 - (b) $n=3, l=1, m=-2, s=-1/2$
 - (c) $n=1, l=1, m=0, s=+1/2$
 - (d) $n=2, l=0, m=0, s=1$
5. In NaCl crystal, Cl^- ions are present in fcc arrangements. Find out the number of Cl^- ions in its unit cell.
 - a. 4
 - b. 6
 - c. 8
 - d. 10
6. Calculate the amount of CaCl_2 ($i=2.47$) dissolved in 2.5L of water such that its osmotic pressure is 0.75 atm at 27°C
 - a. 1.0 g
 - b. 9.2 g
 - c. 3.42 g
 - d. 2.42g

7. Which of the following graphs represents the chemisorptions?



8. Identify the name reaction during conversion of butyl chloride into dibutyl ether
 - a. Williamson's Synthesis
 - b. Perkin's reactions
 - c. Wurtz Reaction
 - d. Grignard's Reagent
9. Conversion of benzoyl chloride into benzaldehyde reduction with $\text{H}_2/\text{Pd}-\text{BaSO}_4$ is known as
 - a. Stephan Reaction
 - b. Rosenmund Reduction
 - c. Clemmenson's Reaction
 - d. Riemer-Tiemann
10. Ziegler-Natta catalyst is an organometallic compound containing
 - a. Zirconium
 - b. Rhodium
 - c. Titanium
 - d. Iron
11. The structure of IF_7 is
 - a. Octahedral
 - b. trigonal bipyramidal
 - c. Octahedral
 - d. Pentagonal bipyramidal
12. The order of the screening effect of the electrons of s, p, d, f orbitals of given shell of an atom on its outer shell electrons is
 - a. $s > p > d > f$
 - b. $f > d > p > s$
 - c. $p < d < s > f$
 - d. $f > p > d > s$
13. A solution is made by dissolving 40 g of H_2SO_4 in 250 ml of water. The molarity of the solution prepared is
 - a. 2M
 - b. 1M
 - c. 4 M
 - d. 5 M
14. Ferric ion forms a Prussian blue coloured ppt. Due to the formation of
 - (a) $\text{K}_4[\text{Fe}(\text{CN})_6]$
 - (b) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$
 - (c) KMnO_4
 - (d) $\text{Fe}(\text{OH})_3$
15. The presence of NH_4^+ radical in solution can be detected by
 - (a) Fehling's solution
 - (b) Benedict's solution
 - (c) Schiff's reagent
 - (d) Nessler's reagent
16. The pH of 10^{-8} M HCl solution is
 - (a) 8
 - (b) 6
 - (c) 6.98
 - (d) 7.02
17. The order of reactivity of various alkyl halides towards SN_1 reaction is
 - (a) $3^\circ > 2^\circ > 1^\circ$
 - (b) $1^\circ > 2^\circ > 3^\circ$
 - (c) $3^\circ = 2^\circ = 1^\circ$
 - (d) $1^\circ > 3^\circ > 2^\circ$

18. Which of the following compounds on oxidation gives benzoic acid?

- (a) Chlorophenol
- (b) Chlorotoluene
- (c) Chlorobenzene
- (d) Benzyl Chloride

19. The charge required for the reduction of 1 mol of $\text{K}_2\text{Cr}_2\text{O}_7$ to Cr^{3+} ion is

- (a) 0.6 faraday
- (b) $2.4 \times 96500\text{C}$
- (c) $6 \times 96500\text{C}$
- (d) $12.4 \times 96500\text{F}$

20. The order of the reaction when rate of reaction is equal to rate constant is

- (a) 1
- (b) 2
- (c) Half
- (d) zero

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