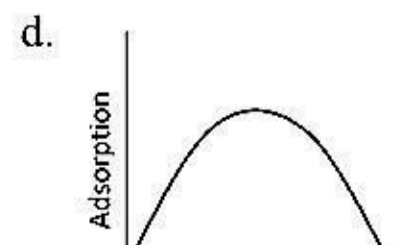
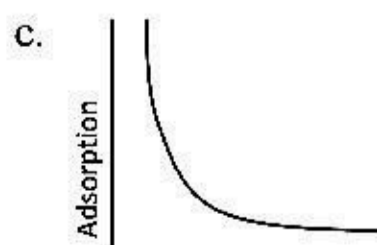
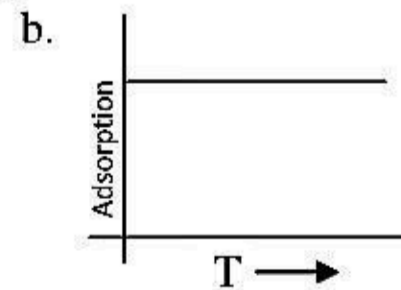
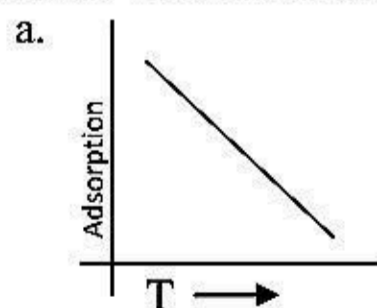


## CHEMISTRY

### QUESTION SET – 3

1. Charles'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<sup>-1</sup> respectively. The enthalpy of formation of  $HCl$  would be
  - a. -22 kcal mol<sup>-1</sup>
  - b. -44 kcal mol<sup>-1</sup>
  - c. +44 kcal mol<sup>-1</sup>
  - d. +22 kcal mol<sup>-1</sup>
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?





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  $K_2Cr_2O_7$  to  $Cr^{3+}$  ion is

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

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

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