SAMPLE PROBLEMS

(CHEMISTRY)

1. Inversion of sucrose is studied by observing the angle of rotation –at time t

$$\underset{\text{Sucrose}}{C_{12}H_{22}O_{11}} + H_2O \xrightarrow{H^+} \underset{\text{Glucose}}{C_6H_{12}O_6} + \underset{\text{Fructose}}{C_6H_{12}O_6}$$

It was observed that $(\gamma_\infty - \gamma_0) \propto a$ and $(\gamma_\infty - \gamma_t) \propto (a - x)$, where γ_0, γ_t & γ_∞ –are the –angle of rotation in the beginning, –at time t and at the end of the reaction, respectively. From the following values, calculate the rate constant & the time at which the solution is optically in –active.

Time (min)	0.0	46.0	∞
Rotation of polarized light (degree)	24.1	10.0	–10.7

(a) 0.011 min^{-1}& 1.077 min.
(b) 0011 min^{-1} & 10.72 min.
(c) 0.011 min^{-1} & 107.2 min
(d) 11 min^{-1} & 107 min.

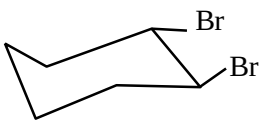
2. In polymeric $(BeCl_2)_n$, there are
(a) three centre four electron bonds.
(b) three centre three electron bonds
(c) two centre three electron bonds
(d) two centre two electron bonds

3. The oxidation state of Central Metal ion & Magnetic moment of Brown Ring complex
(a) +1 & 2.8 BM
(b) +1 & 3.87 BM
(c) +1 & 4.8 BM
(d) +2 & 4.89 BM

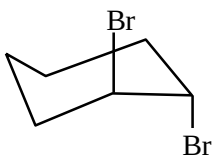
4. Self-protective oxide film on aluminum can be removed by
(a) boiling aluminum with water
(b) amalgamating with mercury
(c) adding conc. HNO_3
(d) reacting with chlorine

5. In gaseous phase which alcohol is most acidic?
(a) Me_3COH
(b) Me_2CHOH
(c) $MeCH_2OH$
(d) MeOH

6. p – Xylene boils at a lower temperature than O-xylene
(a) p – xylene molecule is symmetrical in Nature
(b) o – xylene molecule is non-polar
(c) p – xylene molecular is non - polar
(d) o – xylene molecular is polar

7. 

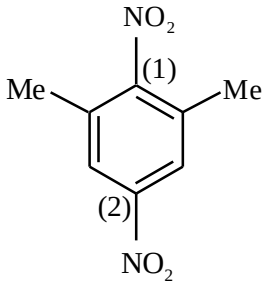
(I)



(II)

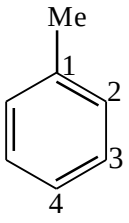
(a) I is soluble in n-octane
(b) II is soluble in CH_3OH
(c) Both are soluble in n-octane
(d) I is soluble in CH_3OH but-II is soluble in n-octane.

8. Which C–N bond length in the below given molecule is large

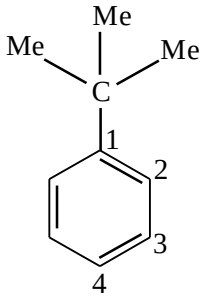


(a) 1
(b) 2
(c) Both are equal in length
(d) can't say

9. Which molecule of below the has highest electron density of C_4.

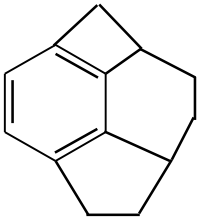


(I)



(II)

(a) I
(b) II
(c) Both have same
(d) can't say

10. 

This molecule is

(a) Aromatic
(b) Anti Aromatic
(c) Non-Aromatic
(d) None

SAMPLE PROBLEMS

(CHEMISTRY)

1. (c)	2. (a)	3. (b)	4. (b)	5. (a)
6. (d)	7. (d)	8. (a)	9. (a)	10. (c)