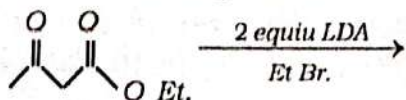
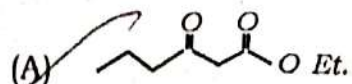
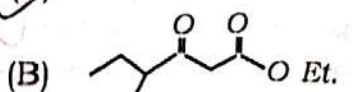
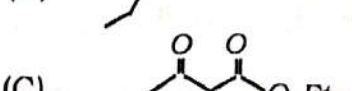
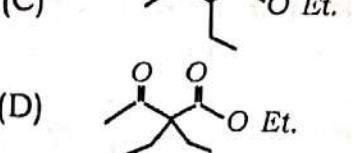
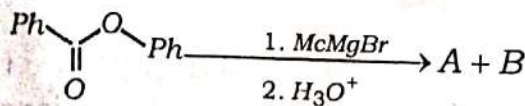


7. The major product formed in the following reaction is



- (A) 
 (B) 
 (C) 
 (D) 

8. In the reaction

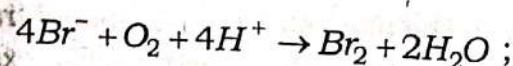


A and B respectively, are

- (A) Benzoic acid and toluene
 (B) Phenol and benzoic acid
 (C) Acetophenone and phenol
 (D) Acetophenone and anisole

Consider the following statements:

Assertion (Ass) : For the cell reaction



$$E_{\text{cell}}^0 = +0.165\text{V (at } 25^\circ\text{C)}$$

the value of $\log K_c = 108$

Reason (R) : Theoretically calculated $\log K_C$ value is 10.8

Pick-up the correct answer using codes below:

Codes :

- (A) Ass and R are both true
 (B) Ass is false but R is true
 (C) Ass is true but R is false
 (D) Ass and R are both false

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10. Consider the following statements:

Assertion (Ass) : A tin plated iron article corrodes quickly but a galvanized article of iron does not corrode readily.

Reason (R) : In the tin plated iron, the more electropositive iron functions as the anode and thus a galvanic cell is set up. But in the second case, zinc is more electropositive than iron and it forms the anode.

Pick-up the correct answer using codes below:

Codes :

- (A) Ass is true but R is false
 (B) Ass is false but R is true
 (C) Ass and R are both false
 (D) Ass and R are both true

11. Given below are two statements, one labelled as Assertion (Ass) and the other as Reason (R). Select your answer from the codes given below.

Assertion (Ass) : NH_3 belongs to C_{3v} point group.

Reason (R) : NH_3 possesses the identity (E), a two fold axis with which are associated one two fold rotations (C_2) and two vertical mirror planes ($2\sigma_v$)

Codes :

- (A) Both (Ass) and (R) are true and (R) is the correct explanation of (Ass)
 (B) Both (Ass) and (R) are true but (R) is not the correct explanation of (Ass)
 (C) (Ass) is true but (R) is wrong
 (D) (Ass) is wrong but (R) is true

12. Some of the following statements are true and some are false. Select the correct answer from the codes given below :

- a) Ligand to metal ($L \rightarrow M$) charge transfer occurs in the species $[Fe(SCN)_6]^{3-}$ and thus it shows very intense colour
- b) $C_{is} - [Pt(NH_3)_2Cl_2]$ may be prepared from tetrachloroplatinate (II) ion by the reaction with NH_3
- c) Nonactin is a typical cyclic ionophores and may form complexes with K^+ ion
- d) Typical aromatic reaction type is not shown by ferrocene

Codes : a) b) c) d)

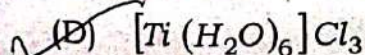
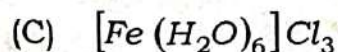
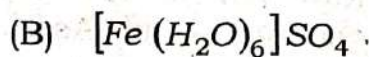
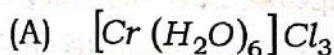
(A) False True False True

(B) True False False True

(C) True True True False

(D) True False True False

13. Which of the following complex will have a tetragonally compressed octahedral geometry?



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14. Given below are two statements, one labelled as Assertion (Ass) and the other as Reason (R). Select your answer from the codes given below :

Assertion (Ass) : The visible absorption spectrum of $[Ti(H_2O)_6]^{3+}$, an example of d^1 complex, shows two apparently overlapping bands rather than a simple single band.

Reason (R) : The presence of the single e_g electron causes the excited state to be split due to Jahn-Teller effect.

Codes :

(A) (Ass) and (R) are both true and (R) is the correct explanation of (Ass)

(B) Both (Ass) and (R) are true but (R) is not the correct explanation of (Ass)

(C) (Ass) is true but (R) is wrong

(D) (Ass) is wrong but (R) is true

15. In the Lassaigne's test organic compounds sometimes Prussian blue colour is observed. This is due to the following conversions. Find the correct one using codes below :

(A) Carbon is converted to carbocation

(B) Chloride is converted to Cl_2

(C) Covalent carbon and nitrogen are converted to cyanide ion

(D) Nitrogen is converted to nitrate

P.T.O.

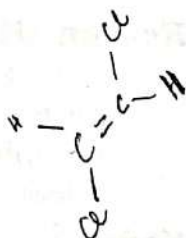
16. The D-Configuration assigned to D-glucose is based on its correlation with

- (A) D-alanine
 (B) D-threose
 (C) D-glyceraldehyde
 (D) D-Lactic acid

17. Pick out the correct answer —

The point group of E-diastereoisomer of 1,2-dichloroethene is —

- (A) C_{2v}
 (B) C_{2h}
 (C) D_{2h}
 (D) D_{2d}



18. Some of the following statements are true and some are false. Read them carefully and then pick out the correct answer from the codes given below :

- (i) The enantiomers belong to the same point group.
 (ii) The enantiomers are isometric in their properties.
 (iii) Molecular dissymmetry is the essential and sufficient condition for enantiomerism.
 (iv) Presence of two or more chiral centres is a sufficient condition for optical activity of a compound

- Codes :** (i) (ii) (iii) (iv)
 (A) True/ False True/ False
 (B) True True True False
 (C) False False True True
 (D) True False False True

19. The standard reduction potentials of

$$Zn^{2+}/Zn = -0.76V$$

$$Cu^{2+}/Cu = +0.34V$$

$$Ni^{2+}/Ni = -0.25V$$

$$Fe^{2+}/Fe = -0.44V$$

The most reactive metal above which displaces other metals from their salt solutions is

- (A) Cu
 (B) Fe
 (C) Zn
 (D) Ni



20. Read the Assertion (Ass) and Reason (R) and indicate your judgement from the codes provided below :

Assertion (Ass) : Fully reversible reactions are very difficult to find in the chemical world.

Reason (R) : Entropy is a current change with time.

Codes :

- (A) Both (Ass) and (R) are true but (R) is not the only explanation of (Ass)
 (B) Both (Ass) and (R) are true and (R) is the correct explanation of (Ass)
 (C) Both (Ass) and (R) are wrong
 (D) (Ass) is correct but (R) is wrong.