

Answer Key

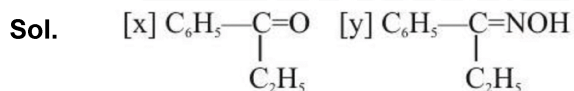
1. (B)	2. (B)	3. (A)	4. (B)	5. (A)
6. (B)	7. (C)	8. (B)	9. (B)	10. (B)
11. (A)	12. (ACD)	13. (ABC)	14. (ABC)	15. (BC)
16. (C)	17. (D)	18. (D)	19. (A)–q, (B)–p, (C)–s, (D)–r	

Solution

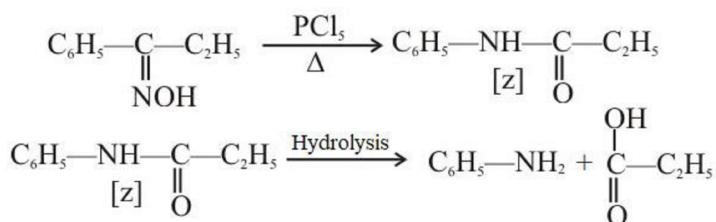
1. Compound (X) $C_9H_{10}O$ gives yellow coloured ppt with 2,4 DNP but does not give red coloured ppt with Fehling's solution. (X) on treatment with NH_2OH/H^+ gives compound (Y) $C_9H_{11}NO$. (Y) when treated with PCl_5 gives isomeric compound (Z). (Z) on hydrolysis gives propanoic acid and aniline. What will be the correct structure of (X), (Y) and (Z) ?

(X)	(Y)	(Z)
(A) $C_6H_5-C(=O)-C_2H_5$	$C_6H_5-C(=O)-C_2H_5$ HO-N	$C_2H_5-C(=O)-NH-C_6H_5$
(B) $C_6H_5-C(=O)-C_2H_5$	$C_6H_5-C(=O)-C_2H_5$ N-OH	$C_2H_5-C(=O)-NH-C_6H_5$
(C) $C_6H_5-C(=O)-CH_3$	$C_6H_5-CH_2-C(=O)-CH_3$ N-OH	$CH_3-C(=O)-CH_2-NH-C_6H_5$
(D) $C_6H_5-C(=O)-C_2H_5$	$C_6H_5-C(=O)-C_2H_5$ N-OH	$C_6H_5-C(=O)-NH-C_2H_5$

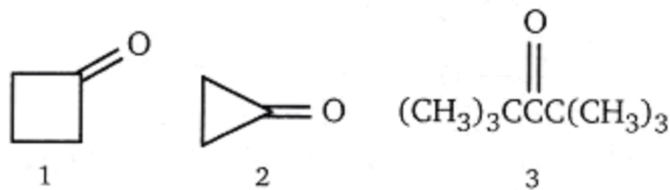
Ans. (B)



[z] is obtained by beckmann reaction
 [Ph > Alkyl (migratory aptitude)]



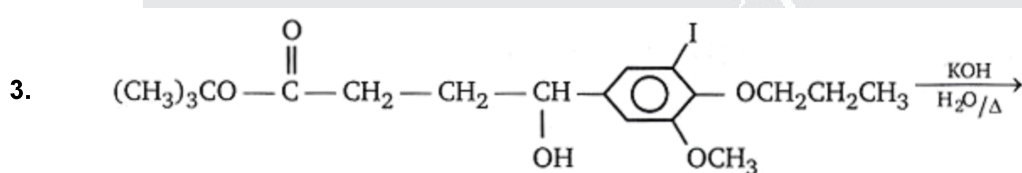
2. Rank the following in order increasing of the equilibrium constant for hydration, K_{hyd} . (smallest value first).



- (A) $1 < 2 < 3$ (B) $3 < 1 < 2$ (C) $2 < 1 < 3$ (D) $2 < 3 < 1$

Ans. (B)

Sol. More positive charge on carbon and Less steric hindrance and unstable reactant will favour nucleophilic attack.

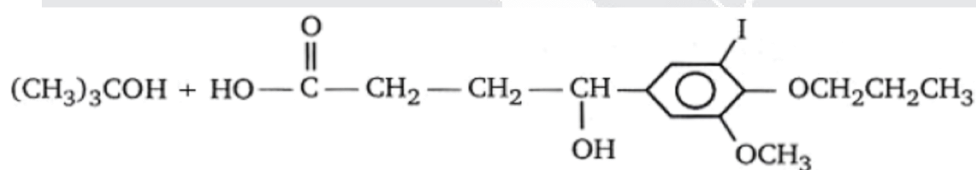


Total number of products obtained in above reaction is:

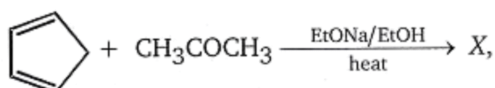
- (A) 2 (B) 3 (C) 4 (D) 5

Ans. (A)

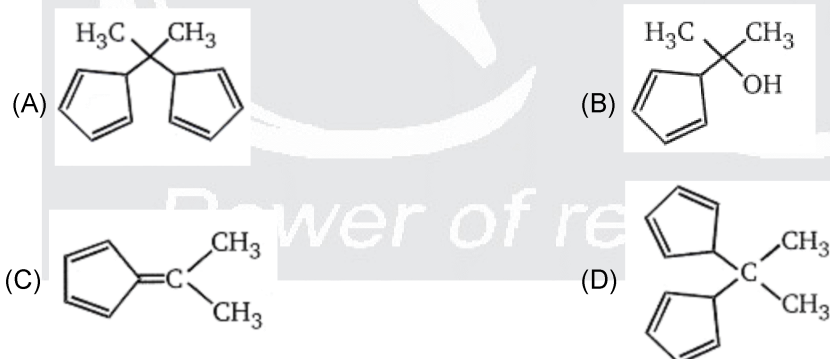
Sol. Ether will not react in basic medium.



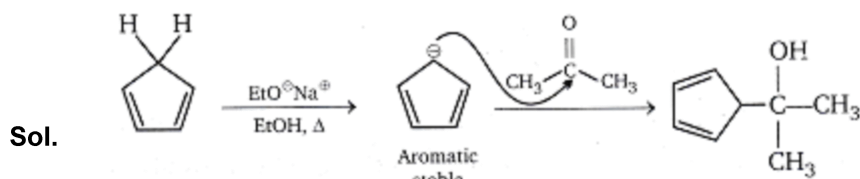
4. In the reaction



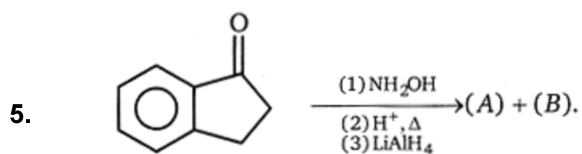
the product (X) is



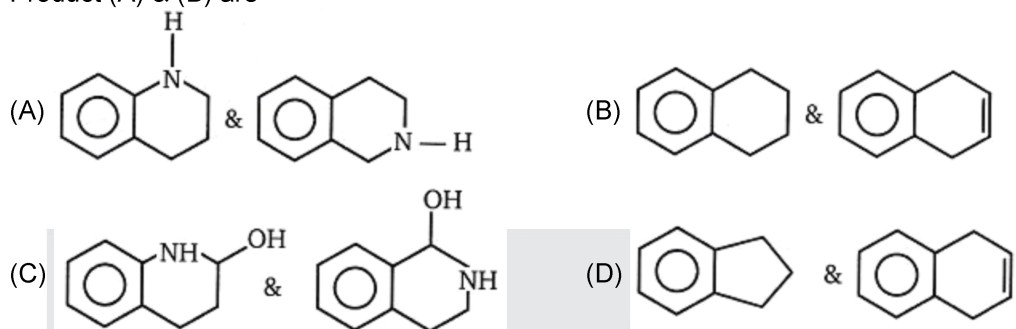
Ans. (B)



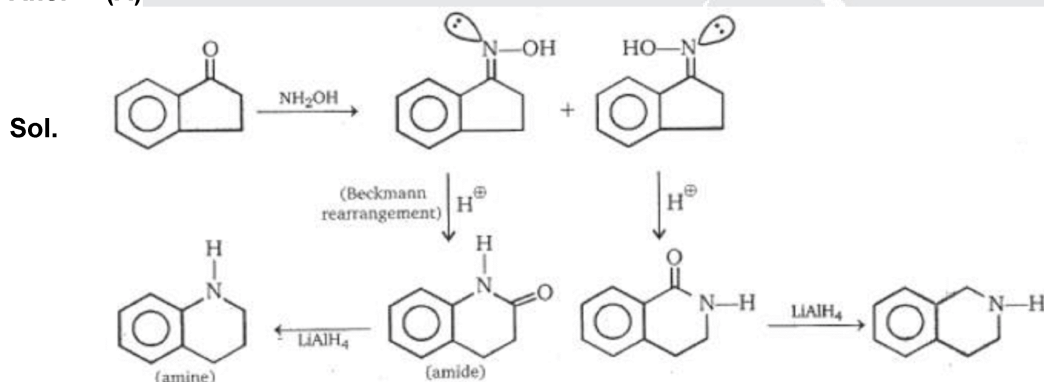
Nucleophilic addition take place.



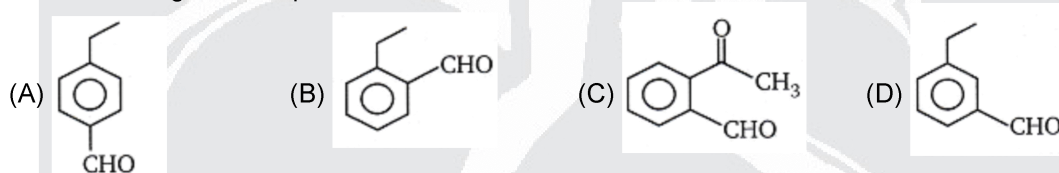
Product (A) & (B) are



Ans. (A)

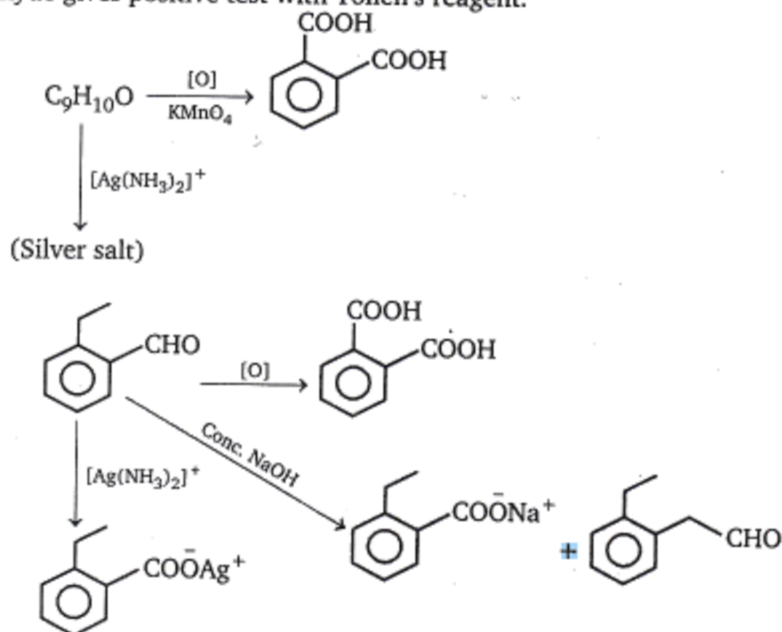


6. An organic compound with the molecular formula $C_9H_{10}O$ forms a 2,4-DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro reaction, on vigorous oxidation it gives 1,2-benzenedicarboxylic acid. Structure of organic compound is:

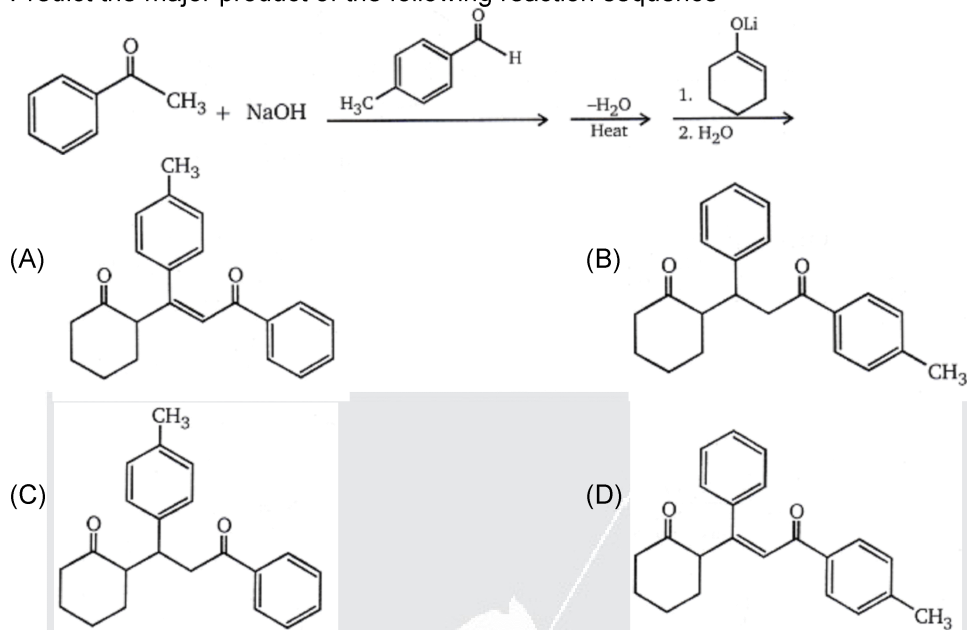


Ans. (B)

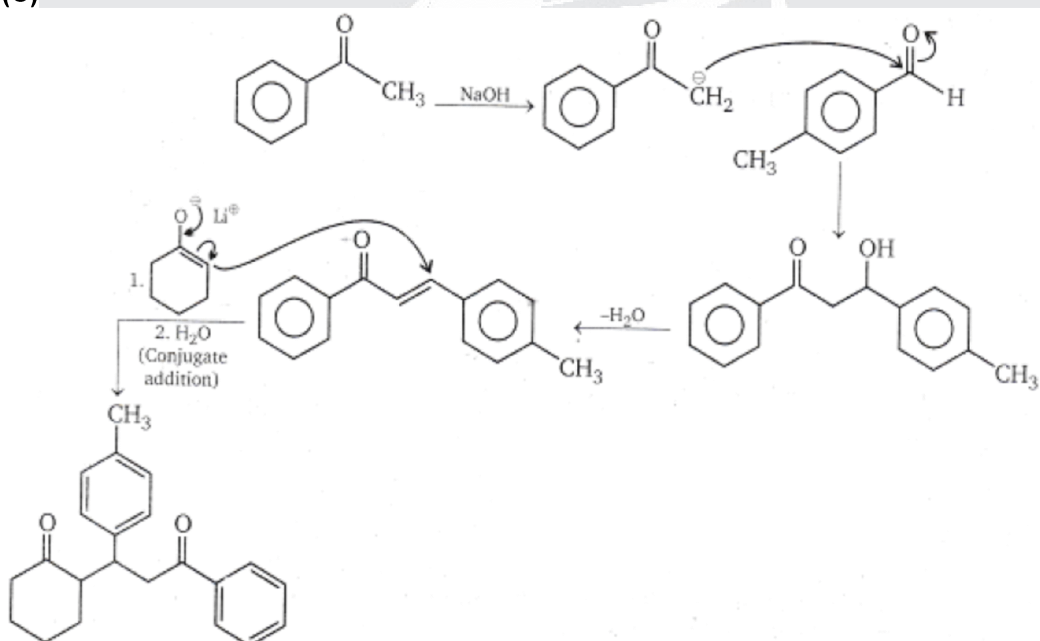
Sol. Aldehyde gives positive test with Tollen's reagent.



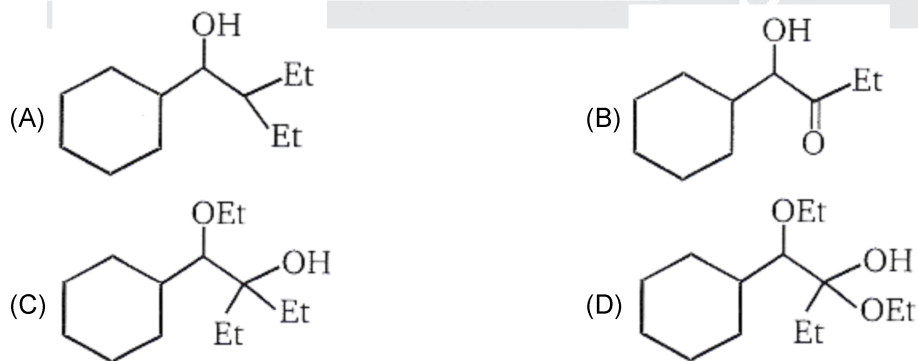
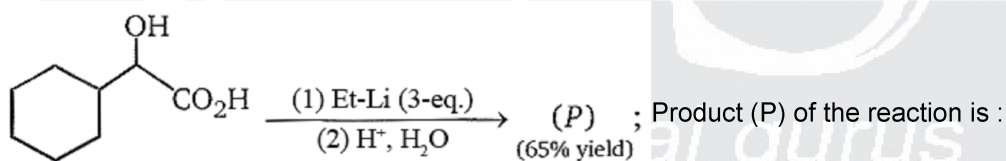
7. Predict the major product of the following reaction sequence



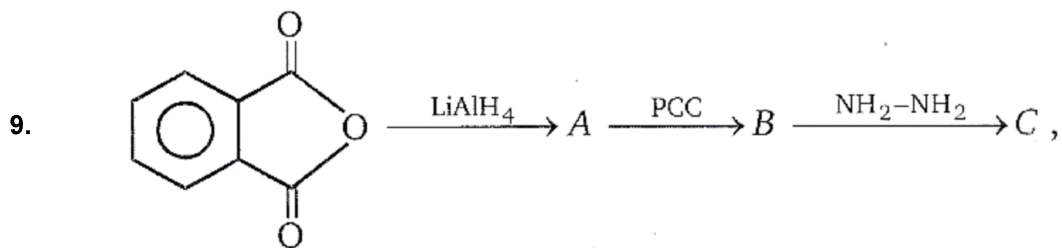
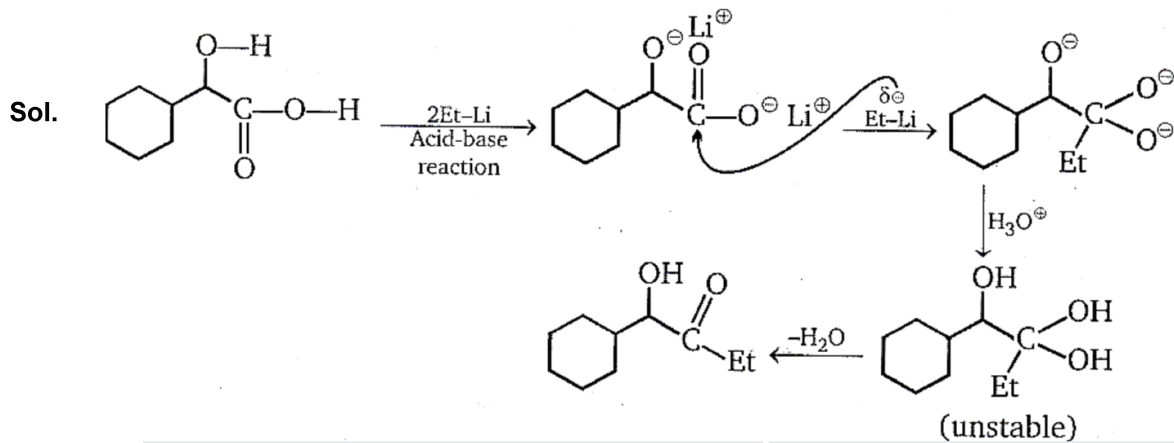
Ans.
Sol.



8.



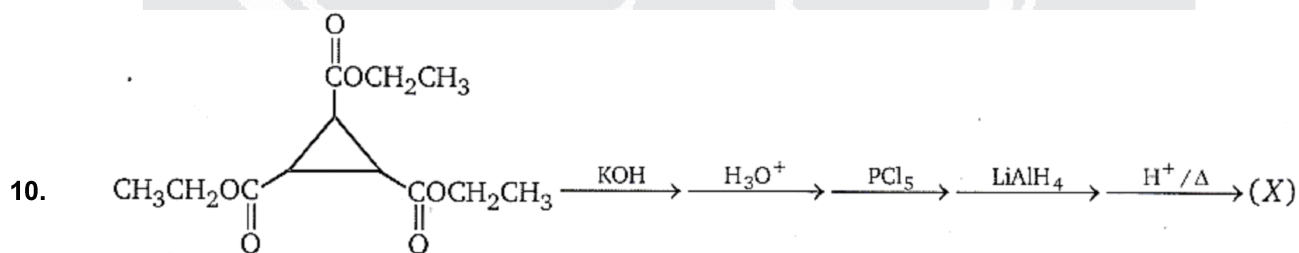
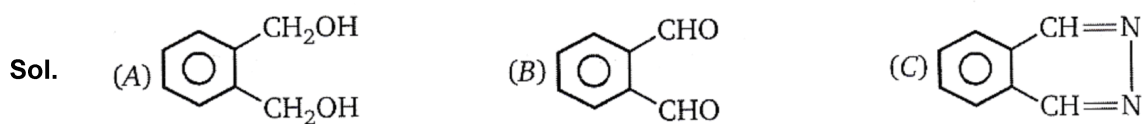
Ans. (B)



Product (c) is



Ans. (B)



Product (X) is



Ans. (B)