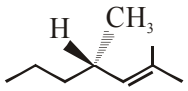
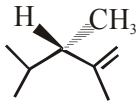
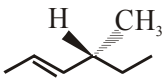
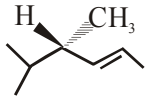
REDUCTION

1. Which of the following compounds produces an optically inactive compound on hydrogenation ?

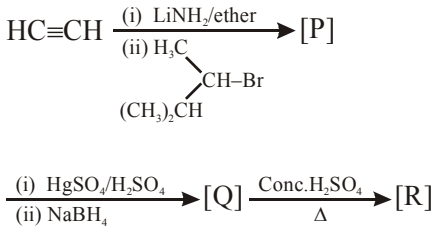
(1) 

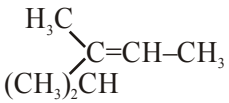
(2) 

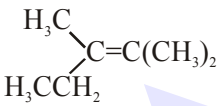
(3) 

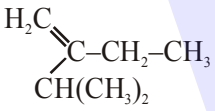
(4) 

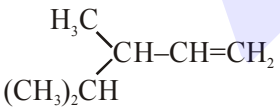
2. The major product [R] in the following sequence of reactions is :-



(1) 

(2) 

(3) 

(4) 

3. The most appropriate reagent for conversion of C_2H_5CN into $CH_3CH_2CH_2NH_2$ is :

(1) $Na(CN)BH_3$

(2) $LiAlH_4$

(3) $NaBH_4$

(4) CaH_2

4. The correct match between **Item-I** (starting material) and **Item-II** (reagent) for the preparation of benzaldehyde is :

Item-I	**Item-II**
(I) Benzene	(P) HCl and $SnCl_2, H_3O^+$
(II) Benzonitrile	(Q) H_2, Pd-$BaSO_4$, S and quinoline
(III) Benzoyl Chloride	(R) CO, HCl and $AlCl_3$

(1) (I)-(Q), (II)-(R) and (III)-(P)

(2) (I)-(R), (II)-(Q) and (III)-(P)

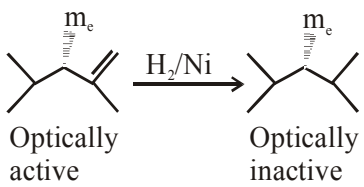
(3) (I)-(R), (II)-(P) and (III)-(Q)

(4) (I)-(P), (II)-(Q) and (III)-(R)

SOLUTION

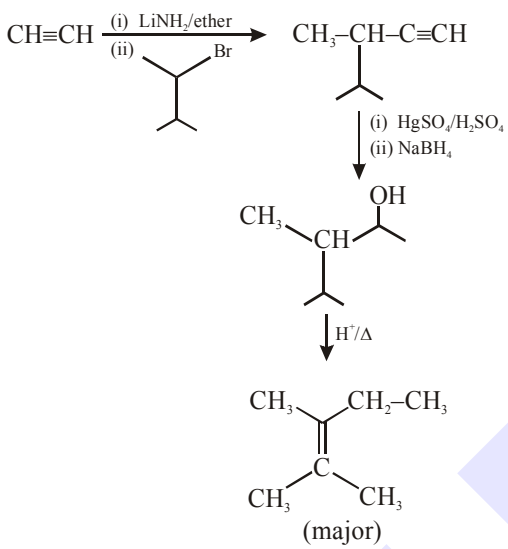
1. Official Ans. by NTA (2)

Sol.



2. Official Ans. by NTA (2)

Sol.



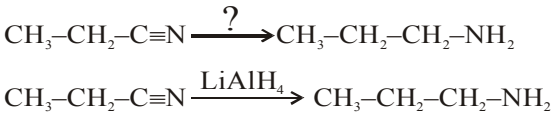
Now :- (i) $HgSO_4$/dil.H_2SO_4

(ii) $NaBH_4$

is convert triple bond into ketone and formed ketone is reduced by $NaBH_4$ and convert into Alcohol.

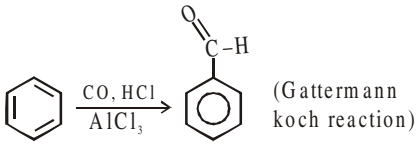
3. Official Ans. by NTA (2)

Sol.

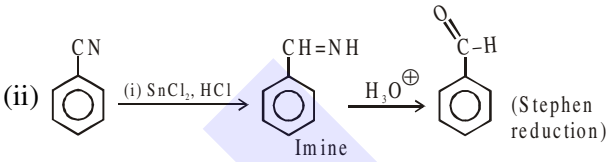


4. Official Ans. by NTA (3)

Sol.(i)



(ii)



(iii)