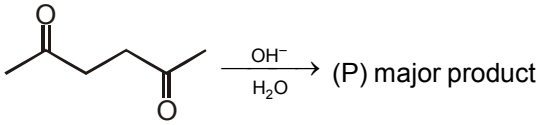
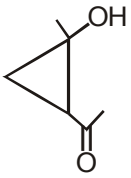
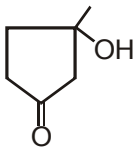
ALDEHYDE & KETONE

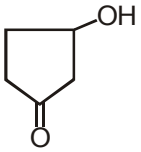
1. 

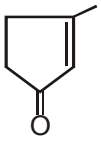
(P) major product

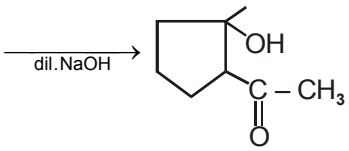
Structure of (P) is

(A) 

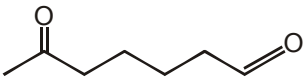
(B) 

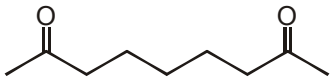
(C) 

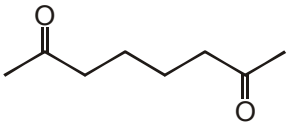
(D) 

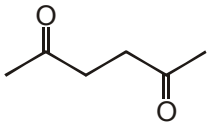
2. (x) 

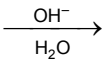
(x) is

(A) 

(B) 

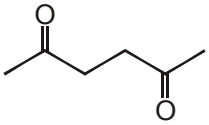
(C) 

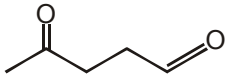
(D) 

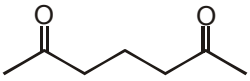
3. (x) 

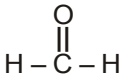
β-hydroxy ketone

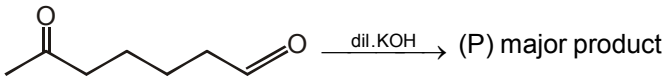
(x) can't be

(A) 

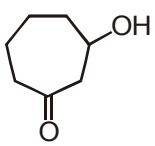
(B) 

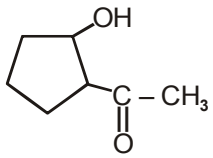
(C) 

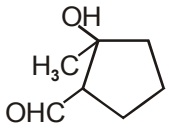
(D) 

4. 

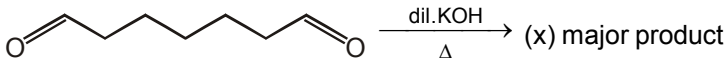
(P) major product

(A) 

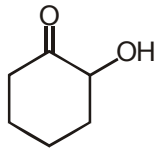
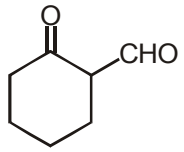
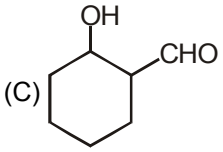
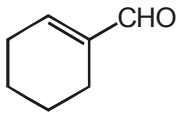
(B) 

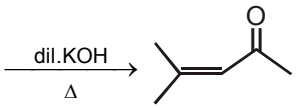
(C) 

(D) None

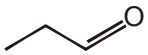
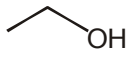
5.  (x) major product

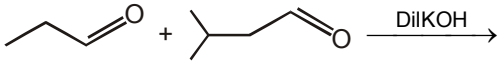
structure of (x) is

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

6. (x) 

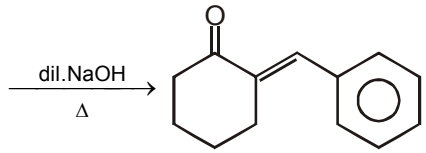
Structure of (x) is

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

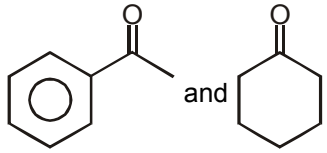
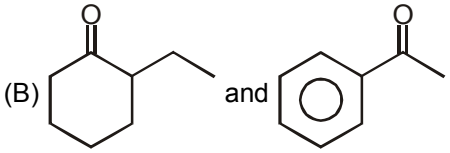
7. 

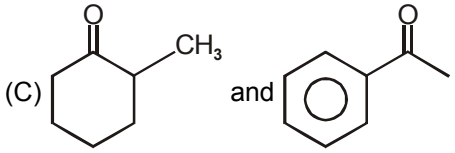
Total number of aldol condensation products are (excluding stereoisomer)

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

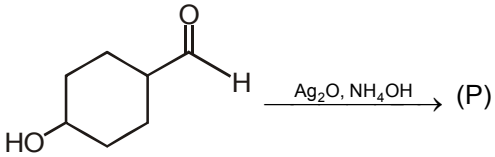
8. (x) + (y) 

(x) and (y) are

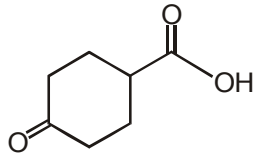
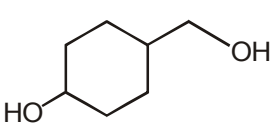
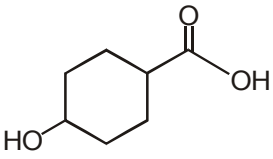
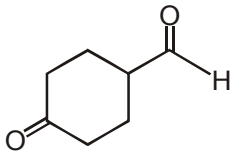
(A)  (B) 

(C) 

(D) None

9. 

Product (P) is

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

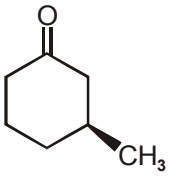
10. $CH_3 - \overset{O}{\overset{\|}{C}} - CH_2 - CH_3 \xrightarrow{Br_2/H^+}$ A (major)

(A) $CHBr_3$

(B) $CH_3 - \overset{O}{\overset{\|}{C}} - \underset{Br}{\underset{|}{CH}} - CH_3$

(C) $\underset{Br}{\underset{|}{CH_2}} - \overset{O}{\overset{\|}{C}} - CH_2 - CH_3$

(D) $CH_3 - \overset{O}{\overset{\|}{C}} - CH_2 - CH_2 - Br$

11.  $\xrightarrow[(ii)\ H_2O]{(i)\ LiAlH_4}$ Relationship between products is

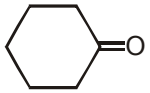
(A) Meso (B) Racemic mixture (C) Diastereomer (D) None

12. $HCHO \xrightarrow{Conc.\ NaOH}$ (x) + (y)

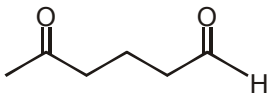
Given reaction is an example of

(A) oxidation (B) Reduction (C) Dispropornation (D) Fermentation

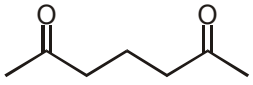
13. Compound which gives cannizaro reaction ?

(A) CD_3CHO (B) C_6H_5CHO (C) CH_3COCH_3 (D) 

14. Total number of intramolecular aldol condensation products possible from given compound is (excluding stereoisomer).



(A) 1 (B) 2 (C) 3 (D) 4

15.  $\xrightarrow[(ii)\ \Delta]{(i)\ Dil\ NaOH}$ Product

Degree of unsaturation in product is ?

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

16. Which acid can be oxidised be Fehling solution:

(A) Malonic acid (B) Acetic acid (C) Oxalic acid (D) formic acid

17. $C_6H_{12}O_3$ (A) $\xrightarrow{+ive}$ Iodoform test; $\xrightarrow{-ive}$ Tollens test $\xrightarrow[\text{drop of } H_2SO_4]{H_2O}$ Positive Tollen's Test. Compound (A) is :

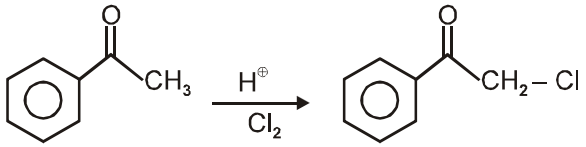
(A) $CH_3-\overset{\overset{O}{\|}}{C}-CH_2-CH_3$

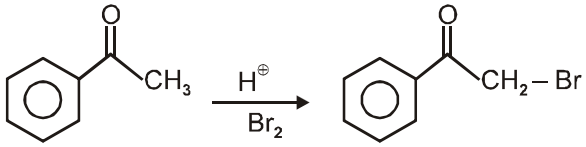
(B) $CH_3-\overset{\overset{O}{\|}}{C}-\overset{\overset{OCH_3}{|}}{\underset{\underset{OCH_3}{|}}{C}}-CH_3$

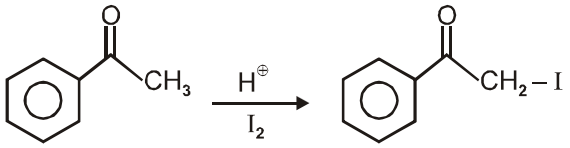
(C) $CH_3-\overset{\overset{O}{\|}}{C}-CH_2-\underset{\underset{OCH_3}{|}}{CH}-OCH_3$

(D) $H-\overset{\overset{O}{\|}}{C}-CH_2-CH_2-\underset{\underset{OCH_3}{|}}{CH}-OCH_3$

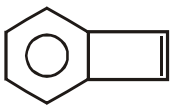
18. Ease of reaction is maximum in which of the following cases?

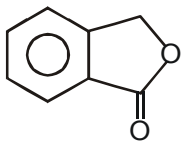
(A) 

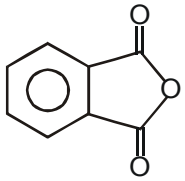
(B) 

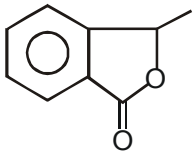
(C) 

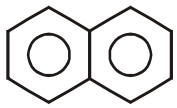
(D) Rate is independent of halogens

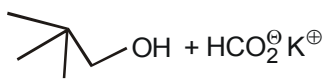
19.  $\xrightarrow[Zn]{O_3}$ (A) $\xrightarrow{\text{Conc. KOH}}$ (B) $\xrightarrow[\Delta]{H^+}$ (C) ; Product (C) is

(A) 

(B) 

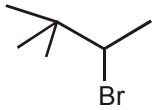
(C) 

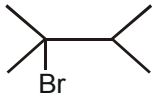
(D) 

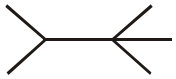
20. (A) $\xrightarrow[\text{(2) conc. KOH}]{\text{(1) } O_3/Zn}$ 

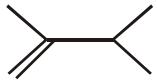
(A) $\xrightarrow[CCl_4]{HBr}$ (B) major

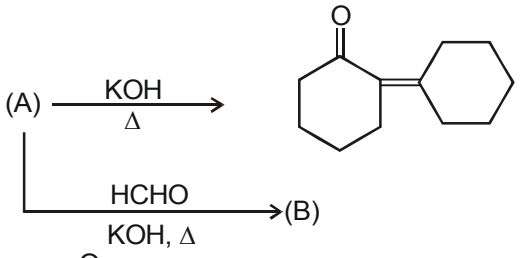
Product (B) is

(A) 

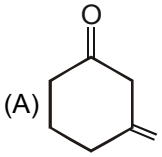
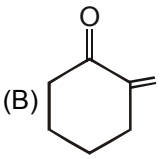
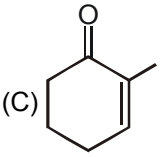
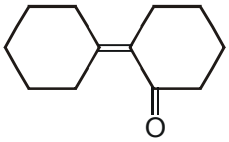
(B) 

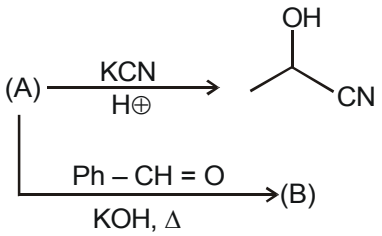
(C) 

(D) 

21. 

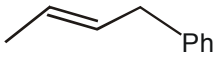
; Product (B) is

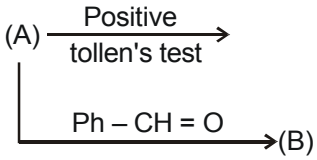
(A)  (B)  (C)  (D) 

22. 

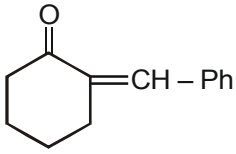
; Product (B) is

(A) Ph – CH = CH – Ph (B) Ph–CH = CH – CH=O

(C)  (D) 

23. 

Product (B) is

(A) Ph – CH = C – CH_3 (with CH_3 below C) (B)  (C) Ph – C(with CH_3 above) = CH – Ph (D) Ph–CH=CH–CH=O

24. Gem dihalide on hydrolysis gives:

(A) Vic diol (B) Gem diol (C) Carbonyl compound (D) Carboxylic acid

25. $C_6H_5 - COOH \xrightarrow[\Delta]{CaO}$

(A) Acetophenone (B) Benzophenone (C) Acetone (D) Benzaldehyde

26. Arrange these compounds in decreasing order of reactivity for the nucleophilic addition reaction :

(I) Acid chloride (II) Aldehyde (III) Ketone (IV) Ester

Select the correct answer from the codes given below:

(A) I > II > III > IV (B) IV > III > II > I (C) III > II > I > IV (D) I > IV > II > III

27. Acetal or ketal is:

(A) Vic dialkoxy compound (B) α, ω-dialkoxy compound

(C) α-alkoxy alcohol (D) Gem dialkoxy compound

28. $Ph - \overset{O}{\overset{\|}{C}} - NH_2 \xrightarrow[\Delta]{P_2O_5} (A)$

Product (A) is

(A) $Ph - N \equiv C$ (B) $Ph - C \equiv N$ (C) $Ph - CH_2 - NH_2$ (D) $Ph - CH = NH$

29. In the given reaction: $C_6H_5 - \overset{O}{\overset{\|}{C}} - H \xrightarrow{NH_2OH/H^{\oplus}}$ [X] , [X] will be:

(A) Only syn oxime (B) Only anti oxime

(C) Mixture of syn and anti oxime (D) Secondary amide

30. Schiff's base is prepared from:

(A) Carbonyl compound and primary amine (B) Carbonyl compound and secondary amine

(C) Carbonyl compound and tertiary amine (D) All of these

31. Schiff's reagent is used for the differentiation between:

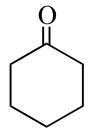
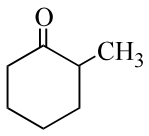
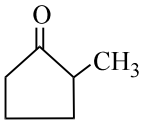
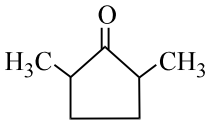
(A) HCHO and CH_3CHO (B) CH_3COCH_3 and CH_3CHO

(C) $C_6H_5 - CH_2 - \overset{O}{\overset{\|}{C}} - CH_3$ and $C_6H_5 - \overset{O}{\overset{\|}{C}} - CH_2 - CH_3$ (D) HCHO and C_6H_5CHO

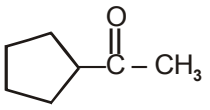
32. In the reaction sequence, [X] is ketone :

$$[X] \xrightarrow{KMnO_4/\overset{\Theta}{O}H/\Delta} HOOC - (CH_2)_3 - CH_2 - COOH$$

[X] will be:

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

33. Which of the following ketone / aldehyde can undergoes haloform reaction?

(A) $CH_3 - \overset{O}{\overset{\|}{C}} - CH_3$ (B) $CH_3 - CHO$ (C)  (D) All of these

34. In the given reaction

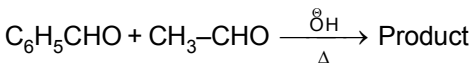
$$X + Y \xrightarrow[5°C]{NaOH} CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle OH}{\underset{|}{\overset{|}{CH}}}} - CH - CHO$$

(X) and (Y) will respectively be :

(A) $CH_3–CH_2–CHO$ and $CH_3–CH_2–CHO$ (B) $CH_3–CHO$ and $CH_3–CH_2–CHO$

(C) $CH_3–CHO$ and $CH_3–CHO$ (D) $CH_3–CHO$ and $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\underset{|}{\overset{|}{C}}}} - CHO$

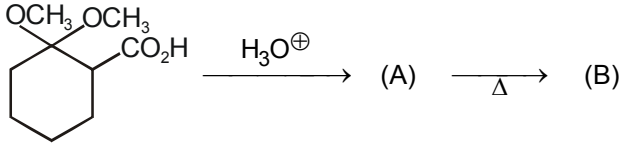
35. Total number of products in the given reaction :(excluding stereoisomers)



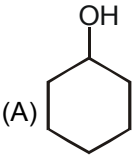
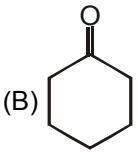
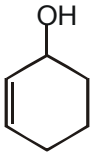
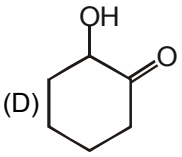
will be

(A) One (B) Three (C) Two (D) Four

36.



Product (B) is

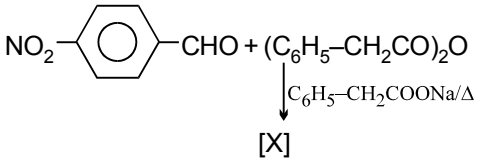
(A)  (B)  (C)  (D) 

37. Product of Perkin reaction is:

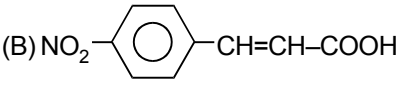
(A) α, β-unsaturated aldehyde (B) β-cyclohexyl α, β-unsaturated aldehyde

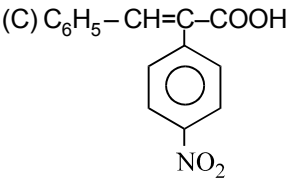
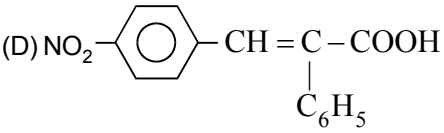
(C) β-Aryl-α, β-unsaturated acid (D) All of these

38. The product of the reaction:



will be :

(A) C_6H_5–CH =CH–COOH (B) 

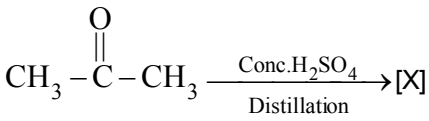
(C)  (D) 

39. Cross cannizzaro reaction is example of :

(A) Redox reaction (B) Disproportionation

(C) Both (A) and (B) (D) Only oxidation

40. In the given reaction :



[X] will be :

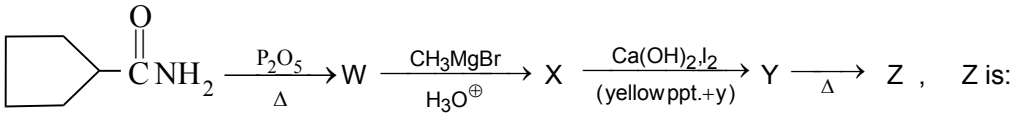
(A) Methyl oxide (B) Phorone

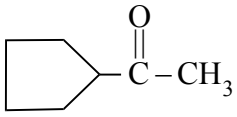
(C) 1, 3, 5-Trimethylbenzene (D) 2-Butyne

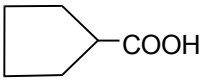
41. Which will give silver mirror test with Tollens reagent :

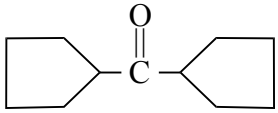
(A) C_6H_5CHO (B) CH_3–CHO

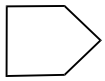
(C) HCOOH (D) All of these

42.  Z , Z is:

(A) 

(B) 

(C) 

(D) 

43. Cyanohydrin of which compound on hydrolysis will give lactic acid?

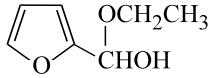
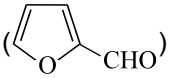
(A) C_6H_5CHO (B) HCHO

(C) CH_3CHO (D) $CH_3–CH_2–CHO$

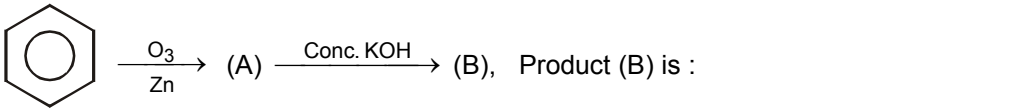
44. Acetaldehyde cannot give:

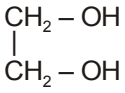
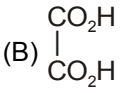
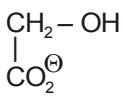
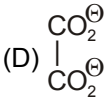
(A) Iodoform test (B) Lucas test

(C) Benedict test (D) Tollens test

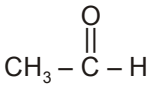
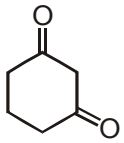
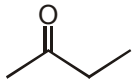
45. Compound  formed by the reaction of furfural () with ethanol is

(A) an aldol (B) an acetal (C) a ketal (D) a hemiacetal

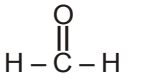
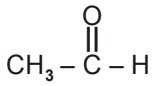
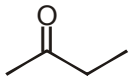
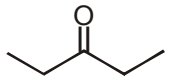
46.  (A), Product (B) is :

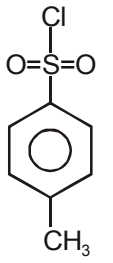
(A)  (B)  (C)  (D) 

47. Which of the following will reacts with NaOI ?

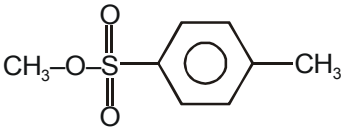
(A)  (B)  (C)  (D) All

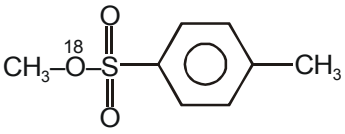
48. Which of the following compound not reacts with $NaHSO_3$?

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

49. $CH_3\overset{18}{O}H$ +  $\longrightarrow$ (A) $\xrightarrow{CH_3O^{\ominus}}$ (B)

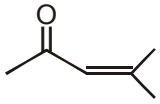
Product (B) is

(A) 

(B) 

(C) $CH_3-\overset{18}{O}-CH_3$

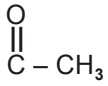
(D) CH_3-O-CH_3

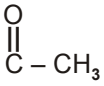
50. A $\xrightarrow[\Delta]{KOH}$ 

B $\xrightarrow[\Delta]{KOH}$ $Ph-CH_2OH + Ph-\overset{-}{C}O_2\overset{+}{K}$

When A reacts with B in presence of KOH / Δ product C is formed.
Product C is?

(A) Ph – CH = CH – CHO

(B) 

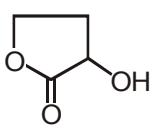
(C) 

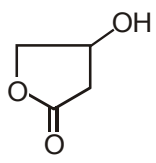
(D) None

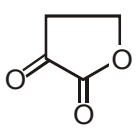
51. $Ph-CH=O + NH_2-NH_2 \xrightarrow{H^{\oplus}}$ (A). Product (A) is known as :

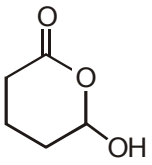
(A) Aldo-Oxime (B) Hydrazone (C) Hydrate (D) Phenyl hydrazone

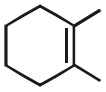
52. $HO-CH_2-CH_2-CH=O \xrightarrow[(2)H^{\oplus}\ (3)H_3O^{\oplus}\ (4)\Delta]{(1)\ KCN}$ (A), Product (A) is :

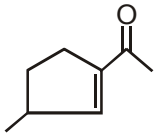
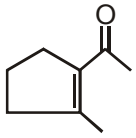
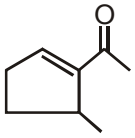
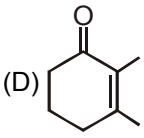
(A) 

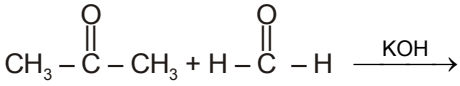
(B) 

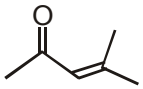
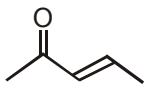
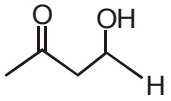
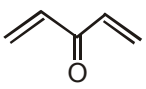
(C) 

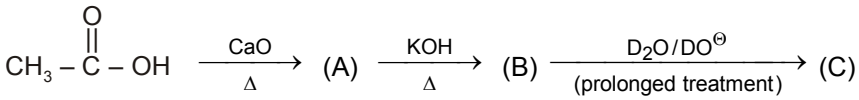
(D) 

53.  $\xrightarrow[Zn]{O_3}$ (A) $\xrightarrow[\Delta]{KOH}$ (B) Major product (B) is :

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

54.  (A) major. Product (A) is :

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

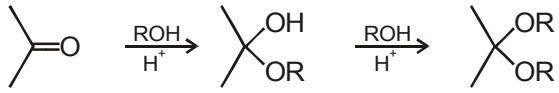
55. 

How many hydrogen is replaced by Deuterium.

(A) 2 (B) 10 (C) 7 (D) 8

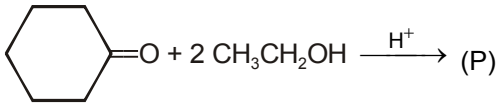
Comprehansion : (Q.56 to Q.58) :

Aldehydes and ketones react with one molecule of an alcohol to form compounds called hemiacetals, in which there is one hydroxyl group and one ether-like group. Reaction of a hemiacetal with a second molecule of alcohol gives an acetal and a molecule of water. We study this reaction

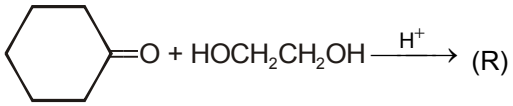


The carbonyl group of an aldehyde or ketone | A hemiacetal (has an —OH and an —OR group to the same carbon) | An acetal (has two —OR groups to the same carbon)

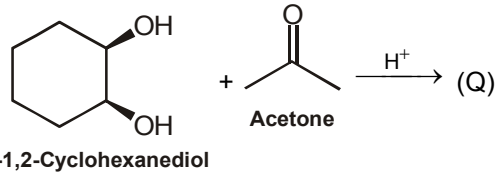
Draw structural formulas for the hemiacetal and acetal formed from these reagents. The stoichiometry of each reaction is given in the problem.

(A) 

Cyclohexanone **Ethanol**

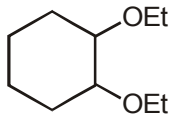
(B) 

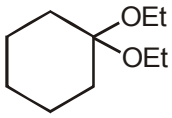
Cyclohexanone **Ethylene glycol**

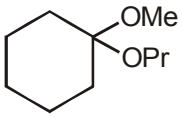
(C) 

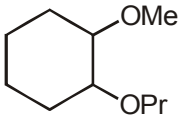
cis-1,2-Cyclohexanediol **Acetone**

56. Product P is.

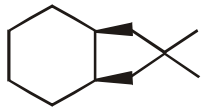
(A) 

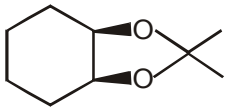
(B) 

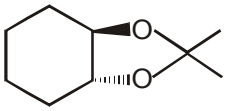
(C) 

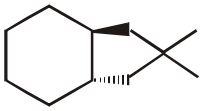
(D) 

57. Product Q is.

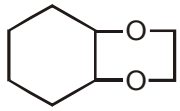
(A) 

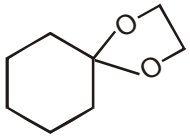
(B) 

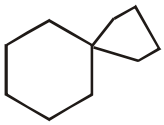
(C) 

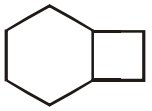
(D) 

58. Product R is.

(A) 

(B) 

(C) 

(D) 

ANSWER KEY

1.	B	**2.**	C	**3.**	D	**4.**	B	**5.**	D	**6.**	B	**7.**	C
8.	D	**9.**	C	**10.**	B	**11.**	C	**12.**	C	**13.**	B	**14.**	C
15.	B	**16.**	D	**17.**	C	**18.**	D	**19.**	A	**20.**	B	**21.**	B
22.	B	**23.**	D	**24.**	C	**25.**	B	**26.**	A	**27.**	D	**28.**	B
29.	C	**30.**	A	**31.**	B	**32.**	A	**33.**	D	**34.**	B	**35.**	C
36.	B	**37.**	C	**38.**	D	**39.**	A	**40.**	C	**41.**	D	**42.**	C
43.	C	**44.**	B	**45.**	D	**46.**	C	**47.**	D	**48.**	D	**49.**	D
50.	C	**51.**	B	**52.**	A	**53.**	B	**54.**	C	**55.**	C	**56.**	B
57.	B	**58.**	B										