1.

Aldehydes and ketones will not form crystalline derivatives with

(a) sodium bisulphite

(b) phenyl hydrazine

(c) semicarbazide hydrochloride

(d) dihydrogen sodium phosphate

2.

Acetone reacts with iodine (I_2) to form iodoform in the presence of

(a) $CaCO_3$ (b) NaOH (c) KOH (d) $MgCO_3$

3.

Two isomeric ketones 3-Pentanones and 2-pentanone can be distinguished by

(a) I_2/NaOH only (b) $NaHSO_3$ only

(c) NaCN/HCl (d) both of (a) and (b)

4.

Benzoic acid gives benzene on being heated with X and phenol gives benzene on being heated with Y. Therefore, X and Y are respectively

(a) sodalime and copper

(b) Zn dust and NaOH

(c) Zn dust and sodalime

(d) sodalime and zinc dust

5.

The product formed in aldol condensation is

(a) a beta-hydroxy acid

(b) a beta-hydroxy aldehyde or a beta-hydroxy ketone

(c) an alpha-hydroxy aldehyde or ketone

(d) an alpha, beta unsaturated ester

6.

Which one of the following can be oxidised to the corresponding carbonyl compound?

(a) 2-hydroxy propane

(b) Ortho-nitro phenol

(c) Phenol

(d) 2-methyl-2-hydroxy propane

7.

Consider the following reaction,

$$\text{Phenol} \xrightarrow{Zn-dust} X \xrightarrow[Anhy.AlCl_3]{CH_3Cl} Y \xrightarrow{Alk.KMnO_4} Z$$

The product Z is

(a) toluene

(b) benzaldehyde

(c) benzoic acid

(d) benzene

8.

Reduction of aldehydes and ketones into hydrocarbons using zinc amalgam and conc. HCl is called

(a) Clemmenson reduction

(b) Cope reduction

(c) Dow reduction

(d) Wolff-Kishner reduction

9.

The -OH group of an alcohol or the -COOH group of a carboxylic acid can be replaced by -Cl using

(a) phosphorus pentachloride

(b) hypochlorous acid

(c) chlorine

(d) hydrochloric acid

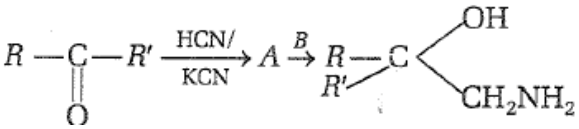
10.

Acetone reacts with iodine (I_2) to form iodoform in the presence of **[1995]**

(a) $CaCO_3$ (b) NaOH (c) KOH (d) $MgCO_3$

11.

A and B in the following reactions are **[2003]**



(a) A=RR'CH_2CN, B=NaOH

(b) A=RR'C$<^{OH}_{COOH}$, B=CH_3

(c) A=RR'C$<^{CN}_{COOH}$, B=CH_3

(d) A=RR"C$<^{CN}_{OH}$, B=$LiAlH_4$

12.

Benzaldehyde and acetaldehyde can be distinguished by:

(a) iodoform test

(b) 2:4 DNP test

(c) NH_3 reaction

(d) Wolff-Kishner's reduction

13.

Acetaldehyde reacts with **[1991]**

(a) only electrophiles

(b) only nucleophiles

(c) only free radicals

(d) both electrophiles and nucleophiles

14.

Nucleophilic addition reaction will be most favoured in **[2006]**

(a) $CH_3 - CH_2 - CH_2\,C - CH_3$ (O above C)

(b) $(CH_3)_2C = O$

(c) $CH_3\,CH_2\,CHO$

(d) $CH_3\,CHO$

15.

The enolic form of acetone contains:

(a) 9 σ-bonds, 1π-bond and 2 lone pairs

(b) 8 σ-bonds, 2π-bonds and 2 lone pairs

(c) 10 σ-bonds, 1π-bond and 1 lone pair

(d) 9 σ-bonds, 2π-bonds and 1 lone pair

16.

In this reaction,

$CH_3CHO + HCN \rightarrow CH_3CH(OH)CN \xrightarrow{H.OH} CH_3CH(OH)COOH$

an asymmetric compound is generated. The acid obtained would be **[2003]**

(a) 50% *D* + 50% *L*-isomer

(b) 20% *D* + 80% *L*-isomer

(c) D-isomer

(d) L-isomer

17.

Cyanohydrin of which compound gives lactic acid on hydrolysis?

(a) Acetone (b) Acetaldehyde

(c) Propanal (d) HCHO

18.

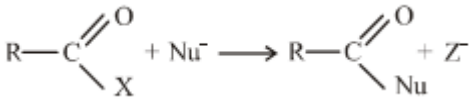
Formaldehyde can be distinguished from acetaldehyde by:

(a) Fehling's solution (b) Schiff's reagent

(c) Ammonia (d) Ammoniacal $AgNO_3$

19.

The reaction



is fastest when X is

1. Cl
2. NH_2
3. OC_2H_5
4. OCOR

20.

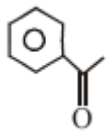
In a set of reaction propionic acid yielded a compound D.

$CH3CH2COOH \xrightarrow{SOCl_2} B \xrightarrow[\Delta]{NH_3} C \xrightarrow[Br_2]{KOH}$

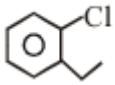
The structure of D would be

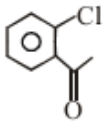
1. $CH_3CH_2NHCH_3$
2. $CH_3CH_2NH_2$
3. $CH_3CH_2CH_2NH_2$
4. $CH_3CH_2CONH_2$

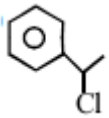
21.

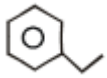


$\xrightarrow{Zn-Hg\,/\,HCl}$Product, Product is

1. 

2. 

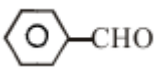
3. 

4. 

22.

Which of the following gives aldol condensation

(1)



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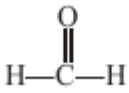

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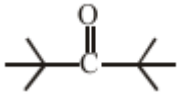

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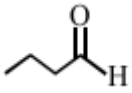

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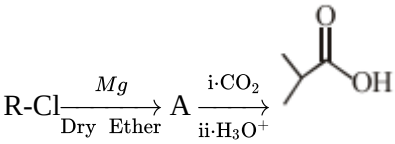
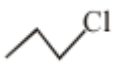


R-Cl is

(1)

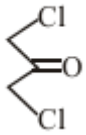


(2)

(3)

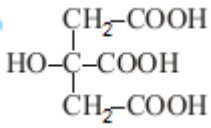
(4)

24.



$\xrightarrow{HCN}$A $\xrightarrow[(excess)]{KCN}$B;B is

(1)



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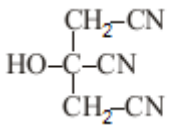
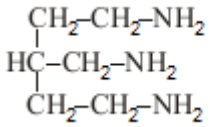
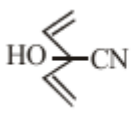


(3)



(4)



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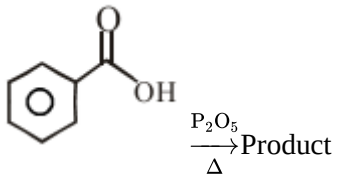
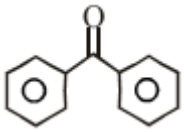


Product is?

(1)



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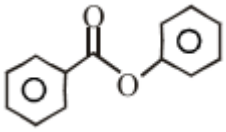

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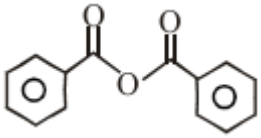

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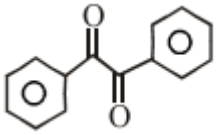


26.

Identify the product (c) in the series

$CH_3CN \xrightarrow{Na/C_2H_5OH} A \xrightarrow{HNO\,2} B \xrightarrow{KMnO_4,H^+} C$

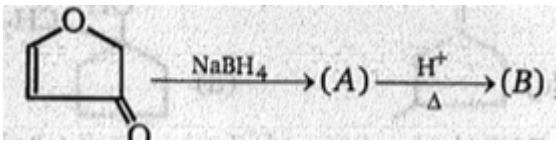
1. CH_3COOH

2. CH_3CH_2NHOH

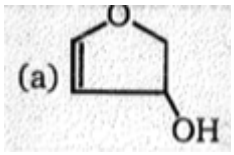
3. CH_3CONH_2

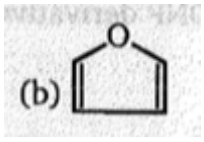
4. CH_3CHO

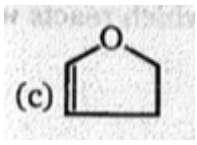
27.

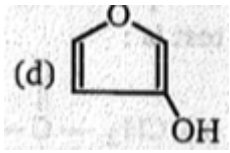


Product (B) of the reaction is :









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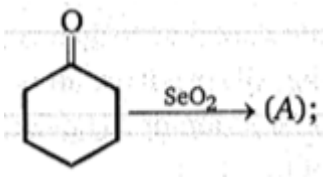
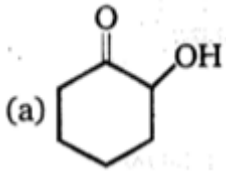
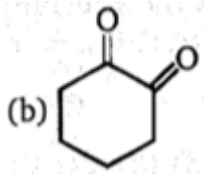
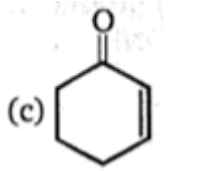
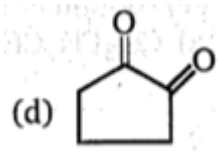


Product (A) of the reaction is :









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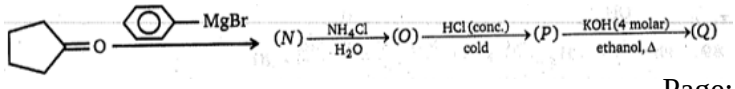

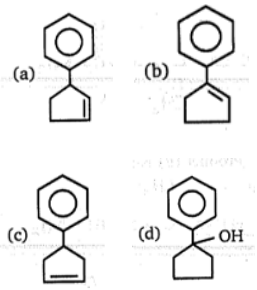

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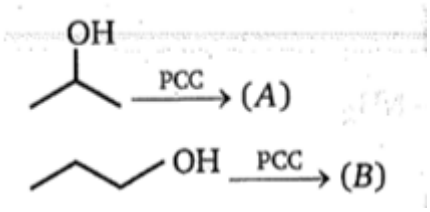


(A) and (B) is differentiated by :

(a) NaH

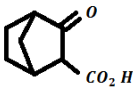
(b) 2-4 DNA

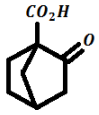
(c) Tollen's reagent

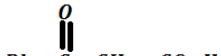
(d) $NaHSO_3$

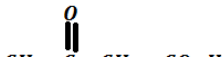
31.

Which β-keto acid shown will not undergo decarboxylation ?

(a) 

(b) 

(c) 

(d) 

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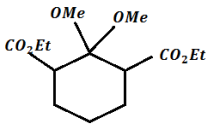
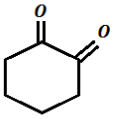
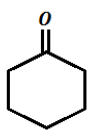
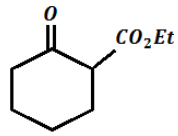
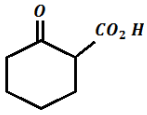


$\xrightarrow[\Delta]{H_3O}$ (A) , Product (A) obtained is :

(a) 

(b) 

(c) 

(d) 

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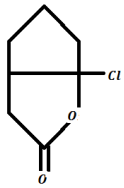
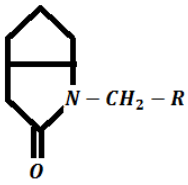
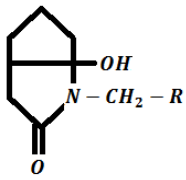


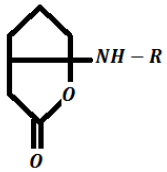
$+R-CH_2-NH_2 \xrightarrow[THF]{K_2CO_3}$ (A)

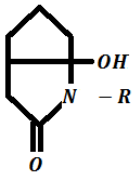
(71%)

In above reaction identify major product (A) of the reaction:

(a) 

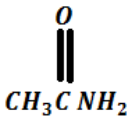
(b) 

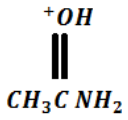
(c) 

(d) 

34.

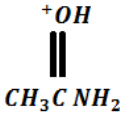
A key step in the hydrolysis of acetamide in aqueous acid proceeds by nucleophilic addition of :

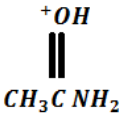
(a) H_3O^+ to 



(b) H_2O to

(c) H_3O^+ to

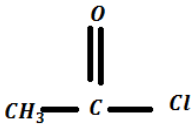




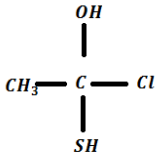
(d) HO^- to

35.

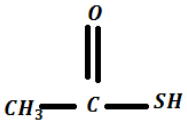
Which is the major product of the following reaction ?



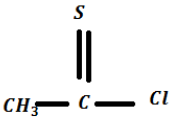
$\xrightarrow{H_2S}$product



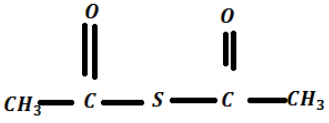
(a)



(b)



(c)



(d)

36.

Compound having molecular formula C_3H_6O may be:

(a) cyclic ether

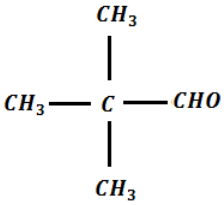
(b) carbonyl compound

(c) unsaturatd ether or unsaturatd alcohol

(d) all of the above

37.

Which of the following would undergo aldol condensation?



(a) CCl_3CHO (b)

(c) CH_3CH_2CHO (d) HCHO

38.

Both acetaldehyde and ketone react with:

(a) ammoniacal $AgNO_3$

(b) rochelle salt

(c) 2,4-dinitro phenylhydrazine

(d) all of the above

39.

Which structural unit is possessed by aldehyde and not ketone?

(a) α-H-atom

(b) H-atom and carbonyl group

(c) OH and carbonyl group

(d) None of the above

40.

Ketones are less reactive than aldehydes because:

(a) C=O group is less polar in ketones

(b) of electromeric effect

(c) of steric hindrance to the attacking reagent

(d) none of the above

41.

The important step in Cannizzaro's reaction is the intermolecular shift of:

(a) proton

(b) H-atom

(c) hydride ion

(d) hydronium ion

42.

Pinacole is:

(a) 2,3-dimethyl-2,3-butandiol

(b) 3,3-dimethyl-2-propanone

(c) 3-methyl butan-2-ol

(d) none of the above

43.

Benedict's solution provides:

(a) Ag^{+}

(b) Cu^{2+}

(c) Ba^{2+}

(d) Li^{+}

44.

Acetaldehyde undergoes self condensation in presence of aluminium ethoxide to give ethyl acetate. This reaction is called:

(a) Perkin reaction

(b) Tischenko's reaction

(c) Cannizzaro's reaction

(d) Aldol condensation

45.

Semicarbazide is:

(a) NH_2CONH_2

(b) NH_2-NH_2

(c) $NH_2CONHNH_2$

(d) None of these

Fill OMR Sheet