CHEMISTRY

FOR IIT JEE ASPIRANTS OF CLASS 11 FOR CHEMISTRY

CARBONYL COMPOUNDS

CUQ

1. Which of the following is not a monovalent functional group.

A. Aldehydic

B. Ketonic

C. Carboxylic

D. Hydroxy

Answer: 2

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2. IUPAC name of α- hydroxybutyraldehyde

A. 1- hydroxy butanal

B. 2- hydroxy butanol

C. 2- hydroxy butanal

D. 2- hydroxy butyraldehyde

Answer: 3

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3. Vinyl alcohol gets converted into acetaldehyde by

A. oxidation

B. reduction

C. rearrangement

D. polymerization

Answer: 3

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4. Arrange the following compound in an increasing order of their reactivity in nucleophilic addition reactions : ethanal propanal, butanone, propanone.

A. III lt II lt I lt IV

B. II lt I ltIII lt IV

C. IV lt III lt II lt I

D. I lt II lt III lt IV

Answer: 3

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5. $CH_3COCl \xrightarrow[Pd/BaSO_4]{2H} CH_3CHO + HCl$

The above reaction is called :

A. Aldol condesation

B. Ciemmenson' s reduction

C. Rosenmund' s reduction

D. Carbylamine reaction

Answer: 3

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6. Stephens reaction is used in the preparation of

A. Carboxylic acids

B. Ketones

C. Alcohols

D. Aldehydes

Answer: 4

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7. Isopropyl alcohol on oxidation forms :

A. Acetaldehyde

B. Ethylene

C. Ether

D. Acetone

Answer: 4

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8. The solvent used in Etard' s reaction during the formation of benzaldehyde from toluene is

A. acetic acid

B. warter

C. liq.NH_3

D. CS_2

Answer: 4

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9. Alkaline hydrolysis of gemdihalides gives

A. aldehydes only

B. ketones only

C. carbonyls only

D. Ethers

Answer: 3

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10. Which of the following is the first oxidation product of secondary alcohol ?

A. acid

B. aldehyde

C. ketone

D. Ether

Answer: 3

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11. Acetone can not be obtained from

A. hydrolysis of isopropylidene chloride

B. hydration of propyne

C. dehydrogenation of isopropyl alcohol

D. hydrolysis of ester

Answer: 4

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12. Catalytic poison in Rosemunds reaction

A. Quinoline

B. H_2

C. CH_3COCl

D. CH_3CHO

Answer: 1

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13. Formaldehyde is treated with methyl magnesium iodide in dry ether and finally with water. The product obtained is

A. Isopropyl alcohol

B. Ethyl alcohol

C. Methyl alcohol

D. n - propyl alcohol

Answer: 2

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14. Ethyl alcohol $\xrightarrow[300^0C]{Cu} A + B$ What are A& B

A. Acetaldehyde,Acetone

B. Acetone,Water

C. Acetaldehyde, H_2

D. Actone,H_2

Answer: 3

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15. $CH_3CHO \xrightarrow{OH^-} CH_3CH(OH)CH_2CHO$ represents

A. Cannizaro' reaction

B. Benzoin' condensation

C. Aldol condensation

D. Perkin' s reaction

Answer: 3

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16. $R - CHO + 4[H] \xrightarrow{Zn-Hg\,/\,conc.\,HCl\,.} R - CH_3 + H_2O$ is

A. Wurtz reaction

B. Clemmenson'reduction

C. Wolf- Kishner reduction

D. Friedel -Craft'

Answer: 2

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17. The correct increasing order of boiling points is

A. $C_3H_7CHO < C_4H_9OH < (C_2H_5)_2O < CH_3(CH_2)_3(CH_3$

B. $CH_3(CH_2)_3CH_3 < (C_2H_5)_2O < C_3H_7CHO < C_4H_9OH$

C. $C_4H_9OH < (C_2H_5)_2O < C_3H_7CHO < CH_3(CH_2)_3CH_3$

D. $CH_3(CH_2)_3CH_3 < C_3H_7CHO < (C_2H_5)_2O < C_4H_9OH$

Answer: 2

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18. The reagent that gives an orange coloured precipitate with acetaldehyde is

A. NH_2OH

B. $NaHSO_3$

C. Iodine

D. 2,4-DNP

Answer: 4

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19. Oxime is the product of the following

A. $> C = O +$ hydrazine

B. $> C = O +$ Phenyldhydrazine

C. $-\overset{\overset{O}{||}}{C}-OH+SOCl_2$

D. $>CO+$ Hydroxylamine

Answer: 4

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20. The molecular formula of acetaldehyde semicarbazone is

A. $CH_3-CH=N-CO-NH-NH_2$

B. $CH_3-CH=N-NH-CONH_2$

C. $CH_3-CH=N-OH$

D. $CH_3-CH=N-NH_2$

Answer: 2

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21. Haloform reaction is not given by

A. CH_3COCH_3

B. $CH_3COC_2H_5$

C. $C_6H_5COC_2H_5$

D. $CH_3CH(OH)CH_3$

Answer: 3

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22. Schiff's reagent is :

A. P-Rosaniline hydrochlorde decolourised by passing SO_2

B. P-Rosaniline hydrochlioride decolourised by chlorine

C. A cidic solution of phenolphthalein

D. Rochelle salt solution $+CuSO_4 + NaOH$

Answer: 1

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23. Which of the following reagent is used to identify carbonyl group from other function groups

A. Suhiff' s reagent

B. Fehling ' s solution

C. 2,4 dinitro phenyl hydrazine

D. Tollen ' s reagent

Answer: 3

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24. Ethanal and propanone can be distinguished by

A. Schiff' s reagent

B. Tollen' reagent

C. Fehling' s solution

D. All

Answer: 4

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25. Formalin is:

A. $40\ \%$

B. $10\ \%$

C. $20\ \%$

D. $5\ \%$

Answer: 1

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26. Salicylaldehyde is extracted from

A. Meadow sweet

B. Wintergreen

C. Vanilla beans

D. Cinnamon

Answer: 1

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27. Formaldehyde is used:

A. Disinfectant

B. germicide

C. Antiseptic

D. All

Answer: 4

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Level 1 C W

1. Identify the hydrocarbon which on ozonolysis gives :-

(a) Only acetone

(b) 1 equivalent of propanal + 1 equivalent of formaldehyde (c) 1 equivalent of acetone + 1 equivalent of acetaldehyde

A. $CH_3 - CH = \overset{CH_3}{\underset{|}{C}} - CH_3$

B. $CH_3 - CH = CH - CH_2 - CH_3$

C. $CH_2 = CH - CH_3$

D. $(CH_3)_2C = C(CH_3)_2$

Answer: 1

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2. Write the reagents required in the following reactions :

(i) $CH_2 = CH - CH_2Oh \xrightarrow{?} CH_2 = CH - CHO$

(ii) $CH_3 - COOH \xrightarrow{?} CH_3 - CONH_2$

A. O_3 / H_3O^+

B. PCC

C. $HgSO_4 / H^+$

D. Lucas reagent

Answer: 2

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3. Grignard reagents do not give carbonyl compounds with

A. CO_2

B. RCOCl

C. RCN

D. RCOOR

Answer: 1

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4. The medium in which ethanol is oxidises to ethanl using PCC or PDC is

A. any alcohol

B. Nitro benzene

C. Methlene dichlorde

D. ether

Answer: 3

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5. Addition of water to alkyness occurs in acidic medium and in the presence of Hg^{2+} ions as a catalyst. Which of the following products will be formed on additon of water to but-1-yne under these conditions?

A. $CH_3 - CH_2 - CH_2 - \overset{O}{\overset{||}{C}} - H$

B. $CH_3 - CH_2 - \overset{O}{\overset{||}{C}} - CH_3$

C. $CH_3 - CH_2 - \overset{O}{\overset{||}{C}} - OH + CO_2$

D. $CH_3 - \overset{O}{\overset{||}{C}} - OH + H - C - H$

Answer: 2

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6. Propyne on hydroboration-oxidation gives mainly:

A. Propanol

B. acetone

C. Propanal

D. butanone

Answer: 3

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7. The formation of cyanohydrin from acetone is which type of reaction?

A. Electrophilic substitution

B. Electrophilic addition

C. Necleophilic addition

D. Necleophilic substitution

Answer: 3

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8. The reaction in which gtC=O group changes to gtCH_2

Clemmenson' s reduction

Wolf- Kishner reduction

Aldol condensation

Rosenmund' s reduction

A. A & B only

B. B and C only

C. A and D only

D. A,B,C,D

Answer: 1

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9. The correct order of reactivity of the following towards nucleophilic addition

I) Acetophenone

II) p- Nitrobenzaldehyde.

III) Benzaldehyde

IV) p- Tolylaldehyde

A. $I < IV < III < II$

B. $I < II < III < IV$

C. $I > IV > III < IV$

D. $III < I < II < IV$

Answer: 1

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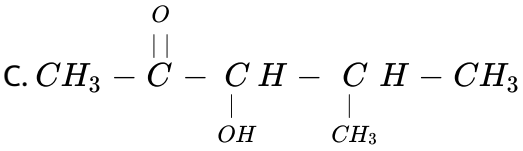
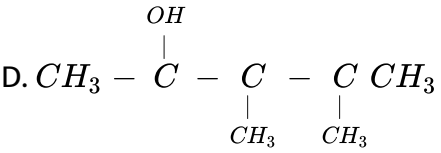
10. Which of the products formed when acetone reacts with barium hydroxide solution

A. $CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - \underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_3$

B. $CH_3 - \overset{\overset{O}{||}}{C} - \underset{\underset{CH_3}{|}}{C}\,H - \underset{\underset{OH}{|}}{C} - CH_3$

C. 

D. 

Answer: 1

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11. Which of the following compounds not react with sodium bisulphite

A. Benzaldehyde

B. Acetone

C. Acetophenone

D. Acetaldehyde

Answer: 3

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12. A mixture of benzaldehyde and formaldehyde on heating with aqueous NaOH solution gives

A. Sodium benzoate and methyl alcohol

B. sodium benzoate and ethyl alcohol

C. benzyl alcohol and methyl alcohol

D. benzyl alcohol and sodium formate

Answer: 4

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13. Acetaldehyde and Acetone on reaction with chlorine respectively gives

A. Mono chloro acetone, methane

B. Chloral and Dichloro acetone

C. Chloral and Tri chloro acetone

D. Tetra chloro Ethanal, Hexa chloro acetone

Answer: 3

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14. Acetaldehyde form a white crystalline precipitate mixing with a solution of

A. Acidic Zn, Hg

B. Alcoholic Na_2SO_3

C. Saturated,aqueous Na_2HSO_3

D. Aqueous NaCl

Answer: 3

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15. An organic compound redily undergoes cannizaro reaction but dose not react with Fehling' ssolution

A. HCHO

B. CH_3CHO

C. PhCHO

D. CH_3COCH_3

Answer: 3

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16. An organic compound give (+) ve haloform test but does not react with tollen' s reagent.

A. Acetone

B. 2- butanol

C. 1-Butanol

D. All

Answer: A::B

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17. An organic compound givs (+) ve 2,4- DNP test but does not react with Fehling' s Solution.

A. PhCHO

B. PhCOCH_3

C. CH_3COCH_3

D. All

Answer: 4

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18. Which reagent is useful for protecting an aldehyde functional group in synthesis involving strong bases and nucleophiles ?

A. NH_3

B. B_2H_6

C. HCN

D. $HOCH_2CH_2OH$

Answer: 4

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19. What derivative of aldehydes and ketones is known as a Schiff bases?

A. Hydrazone

B. Cyanohydrin

C. Imine

D. Oxime

Answer: 3

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20. Which has the lowest value for its pK_a?

A. Benzaldehyde

B. An ketone bearing several alpha hydrogen

C. An alkane containing a$3^0 H$

D. An amide containing a nitrogen with no alkyl groups bonded to it

Answer: 2

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Level Ii C W

1. Two isomeric compound 'A' and 'B' have the formula $C_3H_6Cl_2$. With aq KOH solution'A' gives propionaldehyde and 'B' gives acetone. Than 'A' and 'B' are

A. $CH_3 - CCl_2 - CH_3$ and $CH_3 - CH_2 - CHCl_2$

B. $CH_3 - CHCl - CHCl_2$ and $CH_3 - CH_2 - CHCl_2$

C. $CH_3 - CH_2 - CHCl_2$ and $CH_3 - CCl_2 - CH_3$

D. $CH_3 - CHCl - CHCl_2$ and $CH_3 - CCl_2 - CH_3$

Answer: 3

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2. A new C-C bond formation is possible in :

A. Cannizaro rection

B. Rosenmund' s reduction

C. Reimer- Tiemann reaction

D. Reimer-Tiemann reaction

Answer: 4

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3. The enol form of acetone after treatment with D_2O gives:

A. $CH_3 - \underset{\underset{OD}{|}}{C} = CH_2$

B. $CH_3 - \underset{\underset{OD}{||}}{C} - CH_3$

C. $CH_3 = \underset{\underset{OH}{|}}{C} - CH_2D$

D. $CD_3 - \underset{\underset{O}{||}}{C} - CD_3$

Answer: 4

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4. (a) Write the reagent used in the following :

$C_6H_5COCH_3 \xrightarrow{?} C_6H_5CH_{12}CH_3$

(b) Arrange the following compounds in increasing order of reactivity towards nucleophilic addition.

$CH_3CHO, C_6H_5CHO, HCHO$

A. Igt III gtII

B. III gt II gt I

C. I =II gt III

D. I gt II gt III

Answer: 4

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5. $A \xrightarrow{Cl_2} CCl_3CHO \xrightarrow{NaOH} B.$ *In* this reaction A and B are

A. CH_3CHO and $CHCl_3$

B. CH_3CHO and C_2H_5Cl

C. CH_3CH_2OH and CH_3Cl

D. CH_3OCH_3 and $CHCl_3$

Answer: 1

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6. $C_6H_5CH_3 \xrightarrow[H_3O^+]{(1)\,CrO_2Cl_2\,/\,CS_2} (A) \xrightarrow{OH^-}$ (B) The Conversition of A to B is called as

A. Cannizaro reation

B. Aldol Condenation

C. Clemmenson reduction

D. Etard reaction

Answer: 1

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7. A substance $C_4H_{10}O$ yields on oxidation a compound C_4H_8O which gives an oxime and a positive iodoform test. The original substance on treatment with conc. H_2SO_4 gives C_4H_8, The structure of the compound is

A. $CH_3CH_2CH_2CH_2OH$

B. $CH_3CHOHCH_2CH_3$

C. $(CH_3)_3COH$

D. $CH_3CH_2 - O - CH_2CH_3$

Answer: 2

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8. Which of the following has the most acidic hydrogen?

A. 3-Hexanone

B. 2,4-Hexanedione

C. 2,5- Hexanedione

D. 2,3- Hexanedione

Answer: 2

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9. What are products of the following crossed cannizaro reactions

A. 

B. 

C. 

D. 

Answer: 4

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10. Identify the product of the following condensation reaction

A. 

B. 

C. 

D.

Answer: 3

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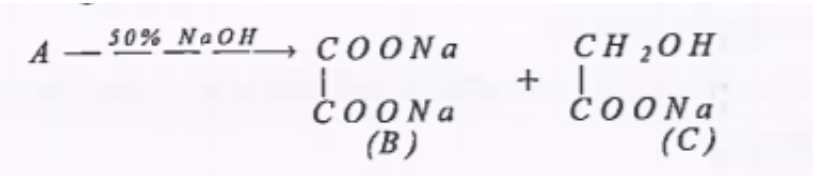
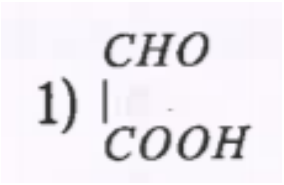
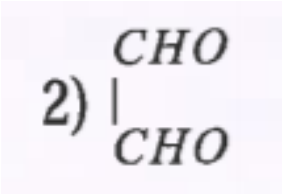
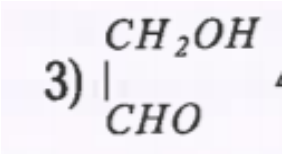
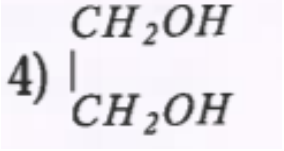
11. By cannizaro reaction A change to B and C as gives Identify 'A'



A. 1) 

B. 2) 

C. 3) 

D. 4) 

Answer: 1

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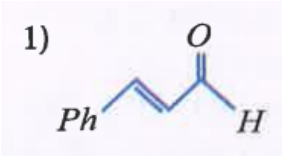
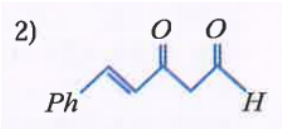
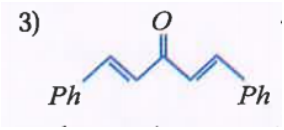
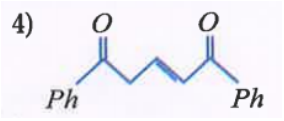
12. Benzaldehyde and acetone in 2: 1 molar ratio is treated with base $Ba(OH)_2$ as follows 2 benzaldehyde+ acetone $\xrightarrow[-H_2O^+]{OH-}$ Product is

A. 1) 

B. 2) 

C. 3) 

D. 4) 

Answer: 3

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13. In the Cannizzaro reaction given below:

$2Ph - CHO \xrightarrow{\overset{\Theta}{OH}} Ph - CH_2OH + PhCO_2^-$ the slowest step is:

A. The attack of OH^- at the carbonly group.

B. The transfer of hydride to carbonly group

C. The abstraction of proton from the carboxylic group

D. Deprotonation of ph. CH_2OH

Answer: 2

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14. $C_3H_8O \xrightarrow[K_2Cr_2O/H]{O} C_3H_6O \xrightarrow[NaOH]{I_2} CHI_3$

The starting compound is

A. $CH_3CH_2CH_2OH$

B. $CH_3\underset{\underset{OH}{|}}{C}H-CH_3$

C. $CH_3-O-CH_2-CH_3$

D. CH_3CH_2CHO

Answer: 2

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15. 

product is

A. 

B. 

C. 

D. 

Answer: 1

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16. A compound (A) has a molecular formula C_2Cl_3OH. It reduces Fehling's solution and on oxidation gives a monocarboxylilc acid (B). It can be obtained by the action of chlorine on ethyl alcohol, (A) is:

A. Chloral

B. $CHCl_3$

C. CH_3Cl

D. Chloroacetic acid

Answer: 1

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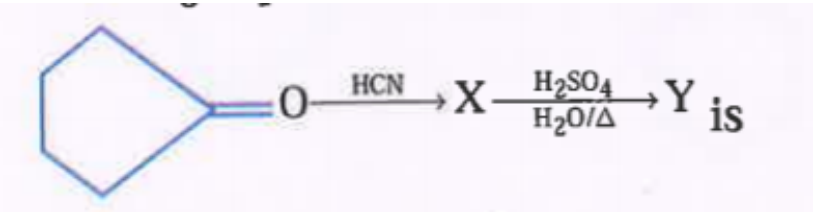
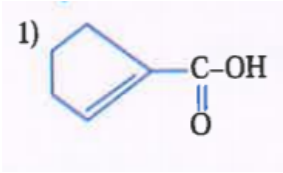
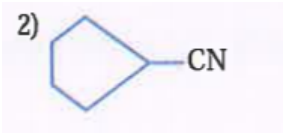
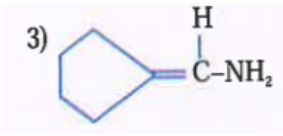
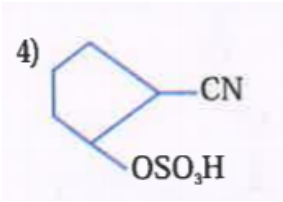
17. The major product obtainned in the reaction



A. 

B. 

C. 

D. 

Answer: 1

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18. On vigorous oxidaiton by permanganate solution $(CH_3)_2C = CHCH_2CHO$ gives

A. $(CH_3)_2CO$ and $OHC - CH_2 - CHO$

B. $(CH_3)_2 - \underset{OH}{\underset{|}{C}} - \underset{OH}{\underset{|}{C}}H - CH_2 - CHO$

C. $(CH_3)_2CO$ and $OHC - CH_2 - COOH$

D. $(CH_3)_2CO$ and $CH_2(COOH)_2$

Answer: 4

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19. 4- heptanone $\xrightarrow{KMnO_4 / H^+ / \Delta}$ A+B. Identify A and B

A. Ethanoic acid pentanoic acid

B. Ethanal and butanone

C. Butanoic acid and propanoic acid

D. Acetic acid and pentanoic acid

Answer: 3

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20. Which of the following alkenes on ozonolysis give a mixture of ketones only?

A. $CH_3CH = CHCH_3$

B. $(CH_3)_2C = CHCH_3$

C. 

D. $(CH_3)_2C = C(CH_3)_2$

Answer: 3

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21. Compounds showing Cannizaro' s reaction are

A) CH_3CH_2CHO (B) $CHCl_2CHO$

C) $(CH_3)_3C - CHO$ D) C_6H_6CHO

A. A,B,C

B. C,D

C. A.C,D

D. A,B,C,D

Answer: 2

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22. 

A. 

B. 

C. 

D. 

Answer: 1

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23. Identify"C" in the following

A. 

B. 

C. 

D. 

Answer: 3

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24. $Ph-CH_2-CHO \xrightarrow[H+]{dilOH^-}$ 'X' identify the product formed

A. $Ph-CH_2-CH=\underset{\underset{ph}{|}}{C}-CHO$

B. ph-ph

C. $ph - CH_2 - \underset{\underset{ph}{|}}{CHC} - CHO$

D. Ph-CHO

Answer: 1

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25. 

X is _____

A. Formic acid

B. Formaldehyde

C. Acetaldehyde

D. Methanol

Answer: 2

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26. What is the initial step in the reduction acetone by sodium borohydride to produce 2- propanol?

A. Attack of hydride anion on the carbonyl carbon

B. Attack of a hydride anion on the carbonyl oxygen

C. Attack of the boron on the carbonyl oxygen

D. Attack of the sodium on the carbonyl oxygen

Answer: 1

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27. Which structural factor favours the formation of stable hydrates from aldehydes ande ketones?

A. The presence of electron- withdrawing groups on the alkyl carbons

B. The presence of basic substituents on the alkyl carbons

C. The presence of electron- donating groups on the alkyl carbons

D. The presence of acidic substituencts on the alkyl carbons

Answer: 1

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28. Which set of reagents would you use to form the following compound?

A. $HO-CH_2-CH_2-OH$ and $CH_2=O$

B. $OH-CH_2-CH=O$ and $CH_2=O$

C. $O=CH-CH=O$ and $CH_2=O$

D. $O=CH-CH=O$ and $HO-CH_2-OH$

Answer: 1

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29. Which of the following will not form an enolate?

A. 

B. 

C. 

D. 

Answer: 4

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30. Which of the following pair of reactants are involved the acid-catalyzed aldol reaction?

A. 

B. 

C. 

D. 

Answer: 3

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Level Iii

1. 

A. l- butene

B. Cyclo butene

C. Cyclo butyne

D. Cyclo butane

Answer: 2

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2. 

Above conversion can be achieved by:

A. Wolf - Kishner - reduction

B. Clemmenson reduction

C. $LiAiH_4$

D. $NaBH_4$

Answer: 2

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3. 

Above conversion can be achieved by :

A. Wolf - Kishner - reduction

B. Clemmensen reduction

C. $HS-CH_2-CH_2-SH$, following by Raney Ni

D. None of these

Answer: 4

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4. 

Product of the Clemmensen reduction is ,

A. 

B. 

C. 

D. 

Answer: 3

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5.

Product (A) is ,

A.

B.

C.

D.

Answer: 2

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6.

Product (B) in this reaction is ,

A.

B.

C.

D. 

Answer: 3

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7. 

identity (A) in the above reaction

A. Butanol

B. 2-butanol

C. But-2 -1-0l

D. But -2-en-2-ol

Answer: 3

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8. 

A. 

B. 

C. 

D. 

Answer: 2

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9. A+B $\xrightarrow{dilOH^-} Ph-CH=CH-\underset{CH_3}{\overset{|}{C}}=O$

identfy A&B in the above reaction

A. Acetophenone, Acetone

B. Acetophenone, Acetaldehyde

C. Acetone ,Benzaldehyde

D. Acetaldehyde, Benzoic acid

Answer: 3

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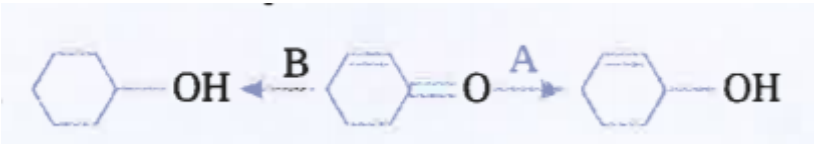
10. 

A and B respectively are

A. $H_2 / Pt, LiAlh_4 / H_2O$

B. $H_2 / Pt, H_2 / Pt$

C. $LiAlH_4 / H_2O, LiAlH_4 / H_2O$

D. $LiAlH_4 / H_2O, H_2 / Pt$

Answer: 4

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11. $(CH_3)_3CCHO \xrightarrow{conc.OH^-} X + Y$

X and Y are

A. $(CH_3)_3CCOO^-, (CH_3)CCH_2OH$

B. $(CH_3)_2CHCOOH, (CH_3)_2CHCH_2OH$

C. $(CH_3)_3COOH, CH_3CH_2OH$

D. C_2H_5COOH, CH_3CH_2OH

Answer: 1

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12. 

product

A. 

B. 

C. 

D. 

Answer: 1

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13. Which statement about the aldol condensation is correct ?

A. A Lewis acid commonly ysed as a catalyst

B. The initial step is probably the formation of a carbanion

C. A Lewis base is employed toinduce carbocation formation

D. The carbon chain is lengthened through the elimination of 1 mole of water

Answer: 2

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14. A compound gives a positive test with $I_2/NaOH$ and is extracted from benzene by saturated $NaHSO_3$. It may be :

A. $CH_3(CH_2)_4CHO$

B. $CH_3(CH_2)_3COCH_3$

C. $CH_3CH_2COCH_2CH_3$

D. $(CH_2)_4CH_2OH$

Answer: 2

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15. 

A. 

B. 

C. 

D. 

Answer: 4

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16. In the gives reaction sequence

$$CH_3CH_2\underset{\underset{O}{||}}{C}CH_2CH_3 \xrightarrow{Br_2/CH_3COOH} X \xrightarrow{Br_2/NaOH} Y$$

X,Y respectively are

A. $CH_3CH_2COCHBrCH_3 \& CH_3CH_2COCBr_2CH_3$

B. $CH_3CH_2COCBr_2CH_3 \& CH_3CH_2COCBrCH_3$

C. $CH_3CH_2COCBr_2CH_3 \& CH_3CH_2COCBr_2CH_3$

D. $CH_3CH_2COCHBr_2CH_3 \& CH_3CH_2COCHBr_2CH_3$

Answer: 1

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17. In the reaction $CH_3CHO \xrightarrow[dilNa_2CO_3]{3HCHO,}$ X.X is

A. $HOCH_2CH_2CHO$

B. $(HOCH_2)_2CH-CHO$

C. $(HOCH_2)_3C-CHO$

D. $C(CH_2OH)_4$

Answer: 3

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18. $C_2H_2 \xrightarrow[excess]{HOCl} A \xrightarrow{Cl_2} B \xrightarrow[aq]{NaOH} C \xrightarrow[HNO_3]{Conc} D$

Identify A,B,C and D

A. $CHCl_3, CHCl_2CHO, CCl_3CHO, CCl_3NO_2$

B. $Cl_2CHCHO, CCl_3CHO, CHCl_3, CCl_3NO_2$

C. $CH_3CHCl_2, CH_3COCCl_3, CHCl_3, CCl_3NO_2$

D. $CHCl_3, CCl_3CHO, CHCl_2CHO, CCl_4$

Answer: 2

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19. Identify the product C in the series

$$CH_3CN \xrightarrow{Na/C_2H_5OH} A \xrightarrow{HNO_2} B \xrightarrow{\text{Tollens reagent}} C$$

A. CH_3COOH

B. $CH_3CH_2NH_2$

C. CH_3CONH_2

D. CH_3CHO

Answer: 4

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20. In which of the following product will be aldehyde

A. $(CH_3)_2C = C(CH_3)_2 \xrightarrow[Zn/H_2]{03}$

B. $CH_3CH = CH_2 \xrightarrow[\Delta, [CO(CO)_8]]{CO/H_2}$

C. $CH_3CH = CH_2 \xrightarrow[CuCl_2]{Pdcl_2, H_2O}$

D. $CH_3 - C \equiv CH \xrightarrow[H_2SO_4 / H_2O]{HgSO_4}$

Answer: 2

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21. Theproduct B in the reaction sequence is

$(CH_3COO)_2Ca \xrightarrow{distillation} A \xrightarrow{Zn-Hg+HCl} B$

A. $(CH_3)_2CHOH$

B. $CH_3 - CH_2 - CH_3$

C. CH_3CHO

D. $CH_3 - CH_2CH_2OH$

Answer: 2

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22. Select the compound which can undergo intramolecular cannizaro reaction in basic medium

A. A,B,D

B. B,C,D

C. A,B,C

D. B,C

Answer: 3

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23. 

(A) Product (A) is

A. 

B. 

C. Both 1& 2

D. None of these

Answer: 2

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24. $Bu - C \equiv CH \xrightarrow{NaNH_2} \xrightarrow[H_2O]{ph-CHO} \xrightarrow{MnO_2} X$

A. 

B. 

C. 

D. 

Answer: 4

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25.

Identify the final product

A. $Ph - \overset{OH}{\underset{|}{C}}H - \overset{O}{\underset{||}{C}} - OK$

B. $Ph - CH_2 - \overset{O}{\underset{||}{C}} - OH$

C. $Ph - \overset{O}{\underset{||}{C}} - \overset{O}{\underset{||}{C}} - H$

D.

Answer: 1

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26. In the following sequence :

$CH_3CH_2Cl \xrightarrow{NaCN} (i) \xrightarrow{Ni/H_2} (ii) \xrightarrow{\text{acetic anhydride}}$ (iii) , Product (iii) is :

A. $CH_3CH_2CH_2NH_2$

B. $CH_3CH_2CONHCH_3$

C. $CH_3CH_2CH_2NHCOCH_3$

D. $CH_3CH_2CH_2CONHCOCH_3$

Answer: 3

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27. Which of the following will reacts with water ?

A. CH_3Cl

B. CCl_4

C. CCl_3CHO

D. CH_2ClCH_2Cl

Answer: 3

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28. Which one of the following will most readily be dehydrated in acidic condition?

A. 

B. 

C. 

D. 

Answer: 1

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29. During reduction of carbonyl compounds by H_2NNH_2 and KOH, the first intermediane is :

A. $RC \equiv N$

B. $RCONH_2$

C. $RCH \equiv NH$

D. $RCH = \mathbb{N}H_2$

Answer: 4

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30. A substance $C_4H_{10}O$ yields on oxidation a compound C_4H_8O which gives an oxime and a positive iodoform test. The original substance on treatment with conc. H_2SO_4 gives C_4H_8, The structure of the compound is

A. $CH_3CH_2CH_2CH_2OH$

B. $CH_3CHOHCH_2CH_3$

C. $(CH_3)_3COH$

D. $CH_3CH_2 - O - CH_2CH_3$

Answer: 2

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31. $(CH_3)_2CO \xrightarrow[(HCl)]{NaCl} A \xrightarrow{H_3O^+} B$

In the above sequence of reaction A and B are

A. $(CH_3)_2C(OH)CN, (CH_3)_2C(OH)COOH$

B. $(CH_3)_2C(OH)CN, (CH_3)_2C(OH)_2$

C. $(CH_3)_2C(OH)CN, (CH_3)_2CHOOH$

D. $(CH_3)_2C(OH)CN, (CH_3)_2C=O$

Answer: 1

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32. The most reactive compound towards formation of cyanohydrin on treatment with KCN followed by acidification is

A. Benzaldehyde

B. P-nitrobenzaldehye

C. Phenylacetaldehyde

D. p-hydroxybenzaldehyde

Answer: 2

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33. Which fo the following statements regarding chemical properties of acetophenone are wrong ?

I. It is reduced to methyl phenyl carbinol by sodium acid and ethanol

II. It is oxidised to benzoic acid with acidified $KMnO_4$

III. It does not undergo electrophilic substitution like nitration at meta position ltbr. IV. It does not undergo iodoform reaction with iodine and alkali.

A. I and II

B. II and IV

C. III and IV

D. I and III

Answer: 3

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34. If $3-$ hexanone is reacted with $NaBH_4$ followed by hydrolysis with D_2O, the product will be :

A. $CH_3CH_2CH(OH)CH_2CH_2CH_3$

B. $CH_3CH_2CH(OHCH_2CH_2CH_3$

C. $CH_3CH_2CH(OD)CH_2CH_2CH_3$

D. $CH_3CH_2CD(OD)CH_2CH_2CH_3$

Answer: 3

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35. Predict the product 'B' in the sequence of reaction $HC \equiv CH \xrightarrow[HgSO_4]{30\% H_2SO_4} A \xrightarrow{NaOH} B$

A. CH_3COONa

B. CH_3COOH

C. CH_3CHO

D. $H_3 - \underset{\underset{|}{OH}}{C}H - CH_2 - CHO$

Answer: 4

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36. An organic compound 'A' has the molecular formula C_3H_6O, it undergoes iodoform test. Whet satruated with HCl it gives 'B' of molecular foumula $C_9H_{14}O$. A and B, respectively are

A. propanal and mesitylene

B. Propanone and mesityl oxide

C. Propanone and 2,6 -dimethy1-2,5 -heptadien -4-one

D. Propanone and mesitylene oxide

Answer: 3

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37. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid?

A. phenol

B. Benzaldehyde

C. Butanol

D. Benzoic acid

Answer: 2

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38. Butan-2-one can be converted to propanoic acid by which of the following ?

A. $NaOH, NaI / H^+$

B. Fehling solution

C. $NaOH, I_2 / H^+$

D. Tollen ' s reagent

Answer: 3

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39. A mixture of benzaldehyde and formaldehyde on heating with aqueous NaOH solution gives

A. Benzyl alcohol and sodium formate

B. Sodium benzoate and methyl alcohol

C. Sodium benzoate and sodium formate

D. Benzyl alcohol and methyl alcohol

Answer: 1

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40. m-Chlorobenzaldehyde on reaction with conc. KOH at room temperature gives:

A. Potassium m- chlorobenzoate and m- hydroxy benzaldehyde

B. m-hydroxy benzaldehyde and m- hydroxy benzyl alcohol

C. m-chlorobenzyl alcohol and m- hydroxy benzyl alcohol

D. potassium m- chlorobenzoate and m- chlorobenzyl alcohol

Answer: 4

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41. Which of the following has most acidic proton :

A. CH_3COCH_3

B. $CH_3CH_2COCOCH_3$

C. $CH_3COCH_2COCH_3$

D. CH_3CHO

Answer: 3

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42. Which of the following will react with acetone to give a product containing

A. $C_6H_5NH_2$

B. $(CH_3)_3N$

C. $C_6H_5 - NHC_6H_5$

D. $C_6H_5NHNH_2$

Answer: 4

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43. $CH_3 - \overset{\overset{O}{||}}{C} - Cl + CH_3MgI \xrightarrow[H_3O^+]{Dryether} A, Ais$

A. $R - \overset{\overset{O}{||}}{C} - CH_3$

B. $R - \overset{\overset{O}{||}}{C} - CH_2Cl$

C. $(CH_3)_3OH$

D. $CH_3 - CHO$

Answer: 3

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44. Which of the following compound on treatment with $LiAlH_4$ will give a product that will give positive lodoform test?

A. $CH_3CH\ {}_{-2}\ CHO$

B. $CH\ {}_{-3}\ CH_2CO_2CH_3$

C. $CH_3CH_2OCH_{-2}CH_3$

D. CH_3COCH_3

Answer: 4

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45. Among the given compounds, the most susceptible to nucleophilic attack at the cabonyl group is:

A. CH_3COCl

B. CH_3CHO

C. CH_3COOCH_3

D. $CH_3COOCOCH_3$

Answer: 1

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46. The reagent which can be used to distinguish acetopheone from benzophenone is :

A. 2,4- dinitrophenylhydrazine

B. aqueous solution of $NaHSO_3$

C. Benedict reagent

D. I_2 and Na_2CO_3

Answer: 4

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47. Predict the product of the following reaction

A. 

B. 

C. 

D. 

Answer: 4

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48. What starting material gives 5- and 6- membered rings through aldol cyclizations?

A. Alpha, beta- unsaturated aldehydes

B. 1,4- and 1,5 -diketones

C. Diamides of dicarboxylic acids

D. Esters of dicarboxylic acid

Answer: 2

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49. What is the product of the following reaction?

A. 

B. 

C. 

D. 

Answer: 1

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50. The compound showing below is cyclic hemiacetal of

A. 5-Hydroxyheptanal

B. 6-Hydroxy -3-heptanone

C. 5-Hydroxy-2- heptanone

D. 6-Hydroxy heptanal

Answer: 3

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51. What is the product of the following reaction?

A. 

B. 

C. 

D. 

Answer: 2

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52. Which is the product of the following reaction ?

A. 

B. 

C. 

D. 

Answer: 3

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53. Predict major product of the following cannizaro' s reaction

A. 

B. 

C. 

D. 

Answer: 1

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54. Which of the sets of reagents below should be used to effect the following transformation ?

A. $CH_3CH_2Br, PPh_3 / C_4H_9Li / THF / -78^\circ C.$

B. $1) CH_3CH_2MgBr / Et_2O, 2) H_2 / SO_4 / \Delta$

C. $HC \equiv Can / THF / -78^\circ C, 2) H_2 / Pd - CBaSO_4 /$ quinoline

D. $Br_2 / CH_3CO_2H, 2) Mg / Et_2O, 3) CH_3CHO, 4) H_2SO_4 / \Delta$

Answer: 1

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Statement Type

1. Statement-I :HCHO and HCOOH can be distingushed by Tollen's test

Statement-II : Silver mirror is formed when ammonical $AgNO_3$ is reduced.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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2. Statement-I: $CH_3COCH_2COCH_3$ does not respond to the iodoform test with I_2/OH^- .

Statement-II Presence of active methylene group attracts the base.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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3. Steatement -I: Acrolein containing aldehyde group undergoes aldol condensation with alkali.

Statement -II The duoble bond breaks when treated with $NaOH$.

$H_2C = CH - CHO \xrightarrow{NaOH} HCHO + CH_3CHO$

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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4. Statement -I: $(CH_3)_2CHCHO$ mainly undergoes Cannizzare reaction when heated with strong alkali.

Statement-II:Steric hindrance prevents aldol condensation.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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5. Statement -I: The acetal formation with ketones does not respond to base catalysis .

Statement-II The dehydration step has to be acid catalysed.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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6. Assertion: $(CH_3)_3CCOC(CH_3)_3$ and acetone can be distanguished by the reaction with $NaHSO_3$.

Reason : HSO_3 is the nucleophile in bisulphite addition.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 2

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7. Assertion : $2,2-$ Dimethylpropanal undergoes Cannizzaro reaction with conc. $NaOH$

Reason : Cannizzaro reaction is a disproportionation reaction

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 2

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8. Assertion : Aldol condensation can be catalysed both by acids and bases.

Reason : β- hydroxy aldehydes or ketones readily undergo acid catalysed dehydration.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 2

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9. Statement -I: Crossed Cannizzaro reaction between formaldehyde and benzaldehyde gives benzyl alcohol and formate ion.

Statement -II: Formaldehyde is a better hydride donor then benzaldehyde.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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10. (A) Carbonyl compounds take part in nucleophilic addition reactions.

(R) These reactions are initialed by nucleophilic attack at the electron

deficient carbon atom.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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11. Statement -I : Secondary alcohols can be easily oxidised to aldehydes.

Statement -I:Aldehydes are prone to further oxidation to carboxylic acids.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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12. Assertion: The addition of ammonia derivative to a carbonyl compound is carried out in weakly acids medium.

Reason : In weakly acidic medium attacking nucleophile is also protonated.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 3

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13. Statement -I: Fehling ' s reagent is a test for all aliphatic aldehydes.

Statement-II : Aliphatic aldehydes can be easily oxidised even with mild oxidising agents.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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14. Statement -I: Propanal undergoes Cannizzaro 's reaction.

Statement -II It has an alpha - hydrogen atom.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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15. Statement -I: Nitromethane can give aldol condensation.

Statement - II: alpha - hydrogen of nitromethane is acidic.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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16. Assertion : Chloral hydrate is a stable compound.

Reason : It is stable due to high molecualr mass.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 3

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17. (A) Acetaldehyde does not show aldol condensation.

(R) Compounds having atlest one $\alpha -$ hydrogen give aldol condensation

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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18. (A) Lower aldehydes and ketones are soluble in water but solubility decrease as the molecular masses increase.

(R) Distinction between aldehydes and ketones can be made by Tollen's reagent.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 2

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19. Statement -I: CH_3CHO on reaction with dil $NaOH$ forms Aldol product

Statement -II Aldehydes and Ketones having $\propto$ hydrogen undergo Aldol condensation.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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20. Statement -:I: Acetaldehyde on reaction with H_2SO_4 at room temp forms a solidfuel

`(CH_(3)CHO)_(4) acts as a solid fuel

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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21. Statement :I :Benzaldehyde undergoes aldol condensation.

Statement -II: It does not contain any $\propto$ - hydrogen atom.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 4

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22. Statement :I: CH_3CHO is more reactive then CH_3COCH_3

:Statement II; The C=0 group in CH_3CHO experiences more steric hidderance

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 3

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23. Statement: I : The solubility of aldehydes and ketones in water decreases with increase of size of the alkyl group

Statement - :II: Alkyl groups are eletron releasing groups

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 2

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24. Statement -:I : The B.P' s aldehydes and ketones are higher than those of ethers of comparable molecular masses.

Statement -:II: Aldehydes and ketones undergo intermolecular association due to dipole -dipole interactions.

A. Both the statements are true and statement- II is the correct explanation of statement -I.

B. Both statements are true but statement -II is not the correct explanation of statement -I.

C. Statement-I is true but statement -II is falsae

D. Statement -I is false but statement- II is true

Answer: 1

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Level Iv

1. Addition of water to alkyness occurs in acidic medium and in the presence of Hg^{2+} ions as a catalyst. Which of the following products will be formed on additon of water to but-1-yne under these conditions?

A. $CH_2 - CH_2 - CH_2 - \overset{O}{\overset{||}{C}} - H$

B. $CH_3 - CH_2 - \overset{O}{\overset{||}{C}} - CH_2$

C. $CH_3 - CH_2 - \overset{O}{\overset{||}{C}} - OH - CO_2$

D. $CH_3 - CH_2 - \overset{O}{\overset{||}{C}} - OH + H - \overset{O}{\overset{||}{C}} - H$

Answer: 2

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2. Which of the following compounds is most reactive towards nucleophilic addition reactions ?

A. $CH_3 - \overset{\overset{O}{||}}{C} - H$

B. $CH_3 - \overset{\overset{O}{||}}{C} - CH_3$

C. 

D. 

Answer: 1

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3. The correct order of increasing acidic strength is

A. Phenol ltEthanol lt Chloroacetic acid lt Acetic acid

B. Ethanol lt Phenol lt Chloroacetic acid lt Acetic acid

C. Ethanol lt Phenol lt Acetic acid lt Chloroacetic acid

D. Chloroacetic acid lt Acetic acid lt Phenol lt Ethanol

Answer: 3

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4. Compound $Ph-O-\overset{O}{\overset{||}{C}}-Ph$ can be prepared by the reaction of _____.

A. Phenol and benzoic acid in the presence of $NaOH$

B. Phenol and benzoyl choride in the presence of pyridine

C. Phenol and benzoly chloride in the presence of $ZnCl_2$

D. Phenol and benzaldehyde in the presence of palladium

Answer: 2

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5. The reagent which does not react with both acetone and benzaldehyde is

A. Sodium hydrogensulphite

B. Phenyl

C. Fehling 's solution

D. Grignard reagent

Answer: 3

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6. Cannizzaro's reaction is not given by

A. 

B. 

C. HCHO

D. CH_3CHO

Answer: 4

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7. Which product is formed when the compound

is treated with concentrated aqueous KOH solution

A. 

B. 

C. 

D. 

Answer: 2

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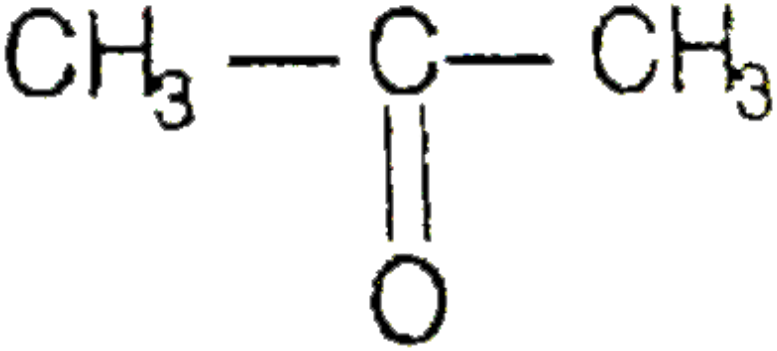
8. $CH_3 - C \equiv CH \xrightarrow[1\,\% HgSO_4]{40\,\% H_2SO_4} A \xrightarrow{\text{isomerisation}}$



Structure of A and type of isomerism in the above reaction respectively are

A. Prop-l-en2-ol, metamerism

B. Prop-l-en-l-ol tautomerism

C. Prop-2-en-2-ol, geometrical isomerism

D. Prop-l-en-2-il, tautomerism

Answer: 4

Watch Video Solution

9. Compound A and C in the following reaction are

$$CH_3CHO \xrightarrow[(ii)\,H_2O]{(i)\,CH_3MgBr} (A) \xrightarrow{H_2SO_4,\,\Delta} (B) \xrightarrow{\text{Hydroboration oxidation}} (C)$$

A. identical

B. positional isomers

C. functional isomers

D. optiocal isomers

Answer: 2

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10. Which is the most suitable reagent for the following conversion ?

$$CH_3 - CH = CH - CH_2 - \overset{\overset{O}{||}}{C} - CH_3 \rightarrow$$

$$CH_3 - CH = CH - CH_2 - \overset{\overset{O}{||}}{C} - OH$$

A. Tollen 's reagent

B. Benzoyl peroxide

C. I_2 and $NaOH$ solution

D. Sn and $NaOH$ solution

Answer: 3

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11. Which of the following compound will give butanone on oxidation with alkaline $KMnO_4$ solution ?

A. Butan -l-0l

B. Butan-2-0l

C. Both of theae

D. None of these

Answer: 2

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12. In Clemmensen reduction, carbonyl compound is treated with .....

A. Zinc amalgam +HCl

B. Sodium amalgam +HCl

C. Zinc amalgam +nitric acid

D. Sodium amalgam + HNO_3

Answer: 1

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13. Which of the following compounds do not undergo aldol condensation?

A. $CH_3 - CHO$

B. 

C. $CH_3 - \overset{O}{\overset{||}{C}} - CH_3$

D. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CHO$

Answer: 24

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14. Treatement of compound $Ph - O - \overset{\overset{O}{||}}{C} - Ph$

with NaOH solution yields

A. Phenol

B. Sodium phenoxide

C. Sodium benzoate and sodium formate

D. Benzophenone

Answer: 2

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15. Which of the following conversion can be carried out by Clemmensen reduction ?

A. Benzaldehyde into benzyl alcohol

B. Cyclohexanone into cyclohexane

C. Benzophenone into benzaldehyde

D. Benzophenone into diphenyl methane

Answer: 24

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16. Through which of the following reactions number of carbon atoms can be increased in the chain ?

A. Grignard reaction

B. Cannizaro 's reaction

C. Aldol condensation

D. HVZ reaction

Answer: 13

Watch Video Solution

17. Benzophenone can be obtained by .....

A. Benzoyl chloride + Benzene + $AlCl_3$

B. Benzoyl chloride + Diphenyl cadmium

C. Benzoyl chloride + phenyl magnesium choride

D. Benzene + Carbon monoxide + $ZnCl_2$

Answer: 12

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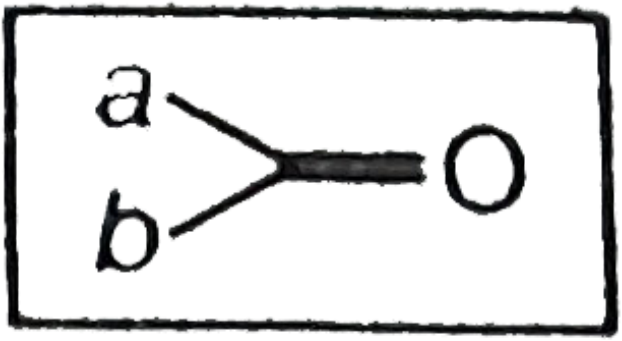
18. Which of the following is the correct represetation for intermediate of nucleophilic addition reaction to the given carbonyl compound (A) ?



(A)

A. 

B. 

C. 

D. 

Answer: 12

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19. Match the common name gives in column I with the IUPAC names given in Column II.

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20. Match the acids given in Column I with their correct IUPAC names given in Column II

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21. Match the reactions given in Column I with the suitable reagents given in Column II.

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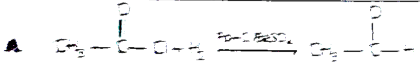
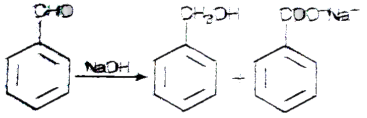
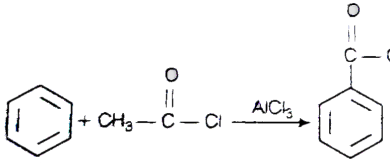
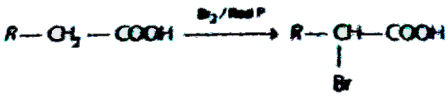
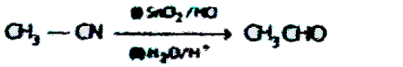
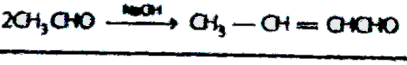
22. Match the example given in Column I with the name of the reaction in Column II.

Column I (Example)		Column II (Reaction)
A.		1. Friedel–Crafts acylation
B.		2. HVZ reaction
C.		3. Aldol condensation

Column I (Example)		Column II (Reaction)
D.		4. Cannizzaro's reaction
E.		5. Rosenmund's reduction
F.		6. Stephen's reaction

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23. Match the following

A.
A	B	C	D
3	4	2	1

B. $3 \quad 4 \quad 1 \quad 2$

C. $2 \quad 1 \quad 4 \quad 5$

D. $5 \quad 3 \quad 2 \quad 1$

Answer: 3

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24. Match the following

A. 1-D, 2-C, 3-A, 4-B

B. 1-B, 2-D, 3-C, 4-A

C. 1-A, 2-C, 3-B, 4-D

D. 1-C, 2-B, 3-A, 4-D

Answer: 4

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25. In the given reaction

$CH_3\overset{OH}{\overset{1}{C}}H - \overset{OH}{\overset{1}{C}}(CH_3)_2 \xrightarrow{HIO_4} A + B$ (A) and (B) respectively are

A. CH_3CHO, CH_3CHO

B. CH_3COCH_3, CH_3CHO

C. CH_3COCH_3, CH_3COCH_3

D. CH_3COOH, CH_3COCH_3

Answer: 4

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26. $Ph - \overset{O}{\overset{||}{C}} - CH_3 \xrightarrow[HCl]{NaNO_2} (A) \xrightarrow[\text{heat}]{AC_2O} (B) \xrightarrow{H_3O^+} (C)$

Product (C) of the above reaction is :

A. $Ph - CO_2H$

B. $Ph - \overset{O}{\overset{||}{C}} - \overset{O}{\overset{||}{C}} - OH$

C. $Ph - \overset{O}{\overset{||}{C}} - \overset{O}{\overset{||}{C}} - H$

D. $Ph - CO_2H$

Answer: 3

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27. $Ph - \overset{O}{\overset{||}{C}} - CMe_3 \xrightarrow{CH_2N_2} \underset{\text{Major}}{A} \xrightarrow{CH_3CO_3H} \underset{\text{Major}}{B}$

Product B is :

A. $CH_3 - \overset{O}{\overset{||}{C}} - O - CH_3$

B. $CH_3 - \overset{O}{\overset{||}{C}} - O - CH_2 - CH_3$

C. $CH_3 - CH_2 - \overset{O}{\overset{||}{C}} - O - CH_3$

D. $CH_3 - CH_2 - CH_2 - O - CH_3$

Answer: 2

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28. $(CH_3)_2C = CHOCH_3 \xrightarrow[HCl]{(CH_3)_2CO} 'X' Here 'X'$ is

A. Mesityl oxide

B. Phorone

C. Acetic acid

D. Mesitylene

Answer: 3

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29. $2CH_3COCH_3 \xrightarrow[\Delta]{dry HCl} 'X'. 'X'$ is

A. Mesitye oxide

B. Diacetone alcohol

C. Acetic acid

D. Mesitylene

Answer: 2

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30. Metaldehyde is the product of the following

A. $4CH_3 - CHO \xrightarrow{Conc.\,H_2SO_4,\,0^\circ C}$

B. $CH_3 - \overset{\overset{O}{||}}{C} - CH_3 \xrightarrow{Conc.\,H_2SO_4,\,roomtemp.}$

C. $3CH_3CHO \xrightarrow{Conc.\,H_2SO_4,\,roomtemp.}$

D. $C_6H_5 - CHO \xrightarrow{conc.\,H_2SO_4}$

Answer: 3

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31. Acetaldehyde when treated with Conc, $H_2SO(4)$ at room temp. undergoes trimerisation and forms

A. Metaldehyde

B. Aldol

C. Paraldehyde

D. Acetaldoxime

Answer: 3

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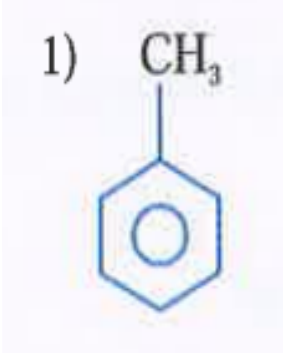
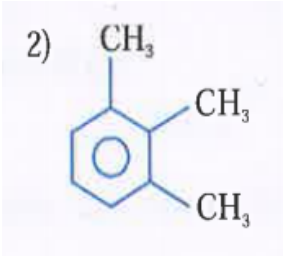
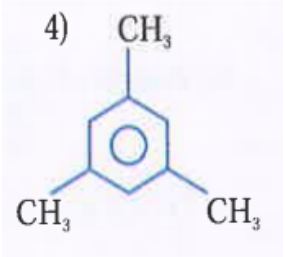
32. Acetone is distilled with concentrated H_2SO_4. The resultant product obtained is

A. 

B. 

C. 

D. 

Answer: 1

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33. Assertion (A) Formaldehyde is a planar molecule.

Reason (R) It contains sp^2 hybridised carbon atom.

A. Assertion and reason both are correct and reason is correct explanation of assertion.

B. Assertion and reason both are wrong statements.

C. Assertion is correct statement but reason is wrong statement.

D.

Answer: i

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34. Assertion (A) compound containing -CHO group are easily oxidised to corresponsing carboxylic acids

Reason (R) : Carboxylic acids can be reduced to alcohols by treatement with $LiAlH_4$

A. Assertion and reason both are correct and reason is correct explanation of assertion.

B. Assertion and reason both are wrong statements.

C. Assertion is correct statement but reason is wrong statement.

D. Assertion and reason both are correct statements but reasson is not correct explanation of assertion

Answer: v

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35. Assertion (A) The α-hydrogen atom in carbonyl compounds is less acidic.

Reason (R) The anion formed after the loss of α-hydrogen atom is resonance stabilised.

A. Assertion and reason both are correct and reason is correct explanation of assertion.

B. Assertion and reason both are wrong statements.

C. Assertion is correct statement but reason is wrong statement.

D. Assertion is wrong statemen but reason is wrong statement

Answer: iv

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36. Assertion : Aromatic aldehydes and formaldehyde undergo Cannizzaro reaction

Reason : Aromatic aldehydes are almost as reactive as formaldehyde.

A. Assertion and reason both are correct and reason is correct explanation of assertion.

B. Assertion and reason both are wrong statements.

C. Assertion is correct statement but reason is wrong statement.

D. Assertion is wrong statemen but reason is wrong statement

Answer: iii

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37. Assertion (A) Aldehydes and ketones, both react with Tollen's reagent to form silver mirror.

Reason (R) Both, aldehydes and ketones contain a carbonyl group.

A. Assertion and reason both are correct and reason is correct explanation of assertion.

B. Assertion and reason both are wrong statements.

C. Assertion is correct statement but reason is wrong statement.

D. Assertion is wrong statemen but reason is wrong statement

Answer: iv

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Level I H W

1. Oxidation of toluene with CrO_3 in presence of $(CH_3CO)_2O$ gives a product (A) which on hydrolysis forms Benzaldehyde. A is ___

A. Chromoum complex

B. Benzlidene diacetate

C. Benzophenone

D. Benzal chloride

Answer: 2

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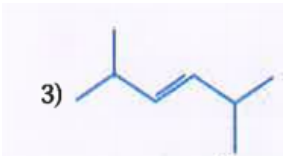
2. Which of The following alkene is most suitable for the preparation of butanone by Ozonolysis

A. 

B. 

C. 

D. 

Answer: 1

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3. Which of the following on heating with aq KOH produces butanaldehyde

A. $CH_3CH_2CH_2CH_2Cl$

B. $CCl_3CH_2CH_2CH_3$

C. $CH_3CH_2CH_2CHCl_2$

D. $CH_3CCl_2CH_2CH_3$

Answer: 3

View Text Solution

4. Find A in the following reaction

$$CH_3 - CH = CH_2 - CH_2 - CN \xrightarrow[H_2O]{DIBAL-H} A$$

A. $CH_3 - CH = CHCH_2COOH$

B. $CH_3 - CH_2 - CH_2CH_2CH_2CHO$

C. $CH_3 - CH = CH_2CH_2CHO$

D. $CH_3 - CH(OH) - CH_2CH_2CH_2CHO$

Answer: 3

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5. Methyl cyanide reacts with ethyl magnesium Bromide and forms an addition compound which on hydrolysis forms a compound (A). The functional Isomer of (A) is

A. Butanone

B. Propanone

C. Butanal

D. Propanal

Answer: 3

Watch Video Solution

6. Propanoyl chloride on reduction with Lindlar' s catalyst forms compound (A).Product (A) is

A. Propanone

B. Propanoic acid

C. Propanol

D. Propanal

Answer: 4

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7. $CH_3CHO + NH_2OH \rightarrow Y$. The number of σ bonds, π bonds and lone pairs of electrons in the compound 'Y' are respectively

A. 9 ,1,4

B. 11, 1 , 5

C. 9,2,2

D. 8, 1,3

Answer: 4

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8. A carbonyl compound reacts with hydrogen cyanide to form cyanohydrin which on hydrolysis forms a recemic mixrture of α-hydroxy acid. The carbonyl compound D.

A. formaldehyde

B. acetaldehyde

C. acetone

D. diethyl ketone

Answer: 2

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9. The increasing order of the rate of HCN addition to compound A-D is

(A) HCHO

(B) CH_3COOH_3

(C) $PhCOCH_3$

(D) $PhCOPh$

A. $A < B < C < D$

B. $D < B < C < A$

C. $D < C < B < A$

D. $C < D < B < A$

Answer: 3

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10. Which one of the following is reduced with zinc and hydrochloric acid to give the corresponding hydrocarbon?

A. Ethyl acetate

B. Acetic acid

C. Acetamide

D. Butan -2- one

Answer: 4

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11. Which of the following does not given iodoform test :

A. 2- pentanone

B. 3- pentanone

C. ethanal

D. etanol

Answer: 2

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12. Aldol condensation does not occur between

A. two different aldehydes

B. two different ketones

C. an aldehyde and a ketone

D. an aldehyde and an ester

Answer: 4

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13. The reagent which gives the same reduction product with propionaldehyde and acetone is

A. $LiAIH_4$

B. $Na - Hg / H_2O$

C. Ni / H_2

D. $Zn - Hg / Conc.\ HCl$

Answer: 4

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14. Which of the following undergoes cannizaro reaction ?

A)HCHO B) C_6H_5CHO

C) Cl_3C-CHO D) $(CH_3)_3C-CHO$

A. Only A & B

B. Only B & C

C. Only C & D

D. Only A,B & D

Answer: 4

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15. Which of the following will not undergo aldol condensation reaction ?

A. $ClCH_2CHO$

B. CCl_3CHO

C. $C_6H_5CH_2CHO$

D. CH_3CHO

Answer: 2

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16. Which of the following combination of aldehydes gives orange yellow ppt with 2,4- DNP

A. Carbonyl compounds

B. Carboxylic acids

C. only aldehydes

D. only ketones

Answer: 1

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17. Di - Isobutyl alluminium hydride (DIBAL-H) can be used to carry out which of the following conversions,

A. Ester to aldehyde

B. Nitriles to imines

C. Both 1 & 2

D. Aldehyde to Carboxylic acids

Answer: 3

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18. Which of the following gives Tollen 's test

A. Acetylene and propyne

B. Formic acid

C. Acetaldehyde

D. All

Answer: 4

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19. Which of the following gives Fehlings test

a) HCHO b) RCHO

c)PhCHO d) RCOR

A. a & b

B. b & c

C. only b

D. All

Answer: 1

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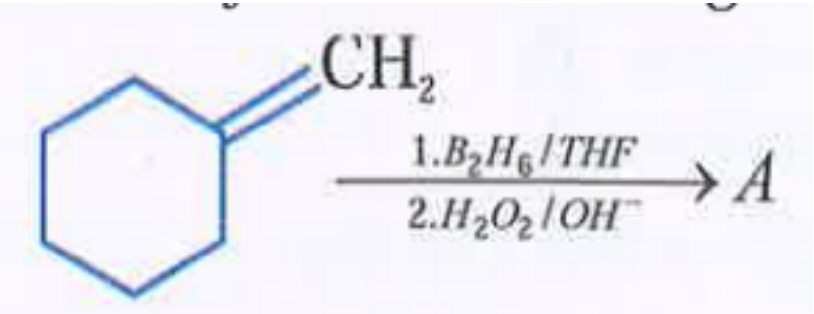
Level Ii H W

1. Identify A in the following



A. cyclo hexane

B. methyl cyclo hexene

C. cyclohexyl methanol

D. methyl cyclo hexane carbaldehyde

Answer: 3

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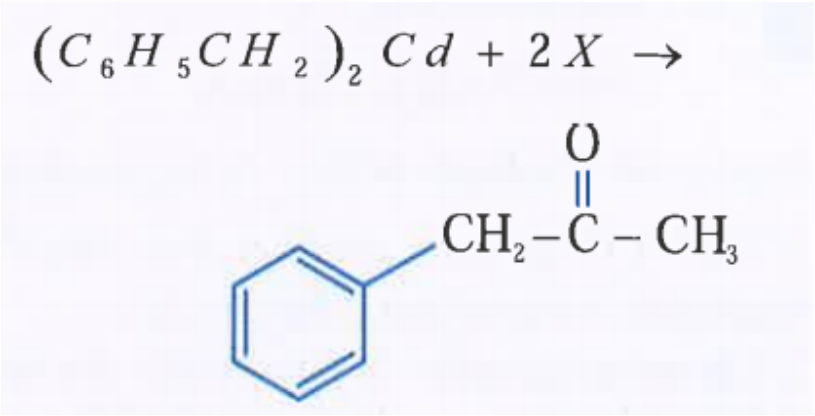
2. $(C_6H_5CH_2)_2Cd + 2X \rightarrow$



Identify X

A. acetyl chloride

B. ethyl chlorde

C. vinyl chloride

D. methyl chloride

Answer: 1

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3. $X + CH_3MgBr - \overset{H_2O}{\underline{\quad}} \rightarrow CH_3COCH_3 + NH_3 + Mg(OH)$

Identify X

A. ethyl cyanide

B. ethyl chlorde

C. ethane nitrile

D. methane nitrile

Answer: 3

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4. 

Name of above reaction is

A. Wurtz reaction

B. Clemmenson reduction

C. Wolf- Kishner reduction

D. Benzoylation

Answer: 4

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5. A $\xrightarrow[Zn\,/\,H_2O]{O_3}$ 2

Identify A and name the reaction

A. 

B. 

C. 

D. 

Answer: 1

View Text Solution

6. Which of the following on hydrolysis with dilute alkali following by acidification gives benzaldehyde.

A. Benzotrichloride

B. Benzal chloride

C. Benzyl chloride

D. P-chlorotoluene

Answer: 2

View Text Solution

7. Butan-2-one can be converted to propanoic acid by which of the following ?

A. $NaOH, NaI / H^+$

B. Fehling 's solution

C. $NaOH, I_2 / H^+$

D. Tollen ' s reagent

Answer: 3

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8. $(CH_3)_2C = CHCOCH_3$ can be oxidised to $(CH_3)_2C = CHCOOH$ by

A. chromic acid

B. $NaOI$

C. Cu at 300°

D. $KMnO_4$

Answer: 2

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9. A compound (A) has a molecular formula C_2Cl_3OH. It reduces Fehling's solution and on oxidation gives a monocarboxylilc acid (B). It can be obtained by the action of chlorine on ethyl alcohol, (A) is:

A. Chloral

B. chloroform

C. chloromethane

D. Chloroacetic acid

Answer: 1

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10. The smallest ketone and its next homologue are reacted with NH_2OH to form oxime.

A. two different oximes are formed

B. three different oximes are formed

C. two oximes are optically

D. all oximed are optically active

Answer: 2

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11. O- Xylene on oxidation with alkaline $KMnO_4$ followed by acidification with HCl gives

A. benzaldehyde

B. benzonitrile

C. benzoic acid

D. phthalic acid

Answer: 4

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12. If $3-$ hexanone is reacted with $NaBH_4$ followed by hydrolysis with D_2O , the product will be :

A. $CH_3CH_2CH(OH)CH_2CH_2CH_3$

B. $CH_3CH_2CD(OH)CH_2CH_2CH_3$

C. $CH_3CH_2CH(OD)CH_2CH_2CH_3$

D. $CH_3CH_2CD(OD)CH_2CH_2CH_3$

Answer: 3

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13. Reduction with aluminium isopropoxide in excess of Isopropyl alcohol is called Meerwein Ponndorff-Verley reduction (MPV). What will be the final product when cyclohex-2-enone is selectively reduced in MPV reaction ?

A. Cyclohexanol

B. Cyclohex -2- enol

C. Cyclohexanone

D. Benzene + Carbon monoxide + $ZnCl_2$

Answer: 2

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14. Aldol condensation between following compounds, followed by dehydration gives emthyl vinkyl ketone:

A. Formaldehyde and acetone

B. Formaldehyde and acetaldehyde

C. two molecules of acetaidehyde

D. two molecules of acetone

Answer: 1

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15. 

what is 'Z' above reaction

A. Chloral

B. chloroform

C. iodoform

D. chloro acetone

Answer: 2

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16. Consider the sturcture of given alcohol, this alcohol can be prepared from:

$$C_6H_5-\underset{\underset{C_2H_5}{|}}{\overset{\overset{OH}{|}}{C}}-CH_3$$

A. $C_6H_5COCH_3$ and C_2H_5MgBr

B. $CH_3CH_2COCH_3$ and C_6H_5MgBr

C. $C_6H_5COC_2H_5$ and CH_3MgBr

D. all of these

Answer: 4

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17. $CH_3 - CH_2 - OH \xrightarrow{PCC} A \xrightarrow{OH^-} B$ Then 'B' is

A. $CH_2 = CH_2$

B. CH_3CHO

C. $CH_3 - CH_2 - OH$

D. $CH_3 - \underset{\underset{H}{|}}{\overset{\overset{OH}{|}}{C}} - CH_2 - CHO$

Answer: 4

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18. $CH_3 - CHO \xrightarrow{LiAlH_4} A \xrightarrow{PCl_3} B.$ Then 'B' is

A. Ethyl alcohol

B. Acetic acid

C. Ethyl chloride

D. Acetaldehyde

Answer: 3

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19. Which product is formed when the compound

is reated with concentrated aqueous KOH solution ?

A. 

B. 

C. 

D. 

Answer: 2

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20. Matchihg column -I

Column -II

A. $\begin{matrix} P & Q & R & S \\ 1 & 2 & 4 & 3 \end{matrix}$

B. $1 \quad 4 \quad 2 \quad 3$

C. $1 \quad 3 \quad 2 \quad 4$

D. $1 \quad 2 \quad 3 \quad 4$

Answer: 4

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Level V

1. Reaction of cyclohexanone with dimethylamine in the presence of catalytic amount of an acid forms a compound if water during the reaction is continously removed. The compound formed is generally known as

A. A Schiff' s base

B. An enamine

C. An imine

D. An amine

Answer: (B)

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2. In a Cannizaro reaction the intermediate that will be the best hydride donor is

A. 

B. 

C. 

D. 

Answer: (C)

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3. 

Products is

A. 

B. 

C. 

D. 

Answer: (D)

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4. In the reaction $CH_3CHO + CH_3COCH_3$with base , how many distinct aldol products are possible ?

A. 1

B. 2

C. 3

D. 4

Answer: (D)

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5. The product obtained by reaction of PhCHO & MeCHO in basic medium are :

A. 

B. 

C. 

D. $Ph - CH = CH - CHO$

Answer: (D)

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6. $CH_3CHO + NH_2OH \rightarrow CH_3CH = N - OH$ The above reaction is carried out at

A. $pH = 1$

B. $pH = 4.5$

C. $pH = 12$

D. $pH = 14$

Answer: (B)

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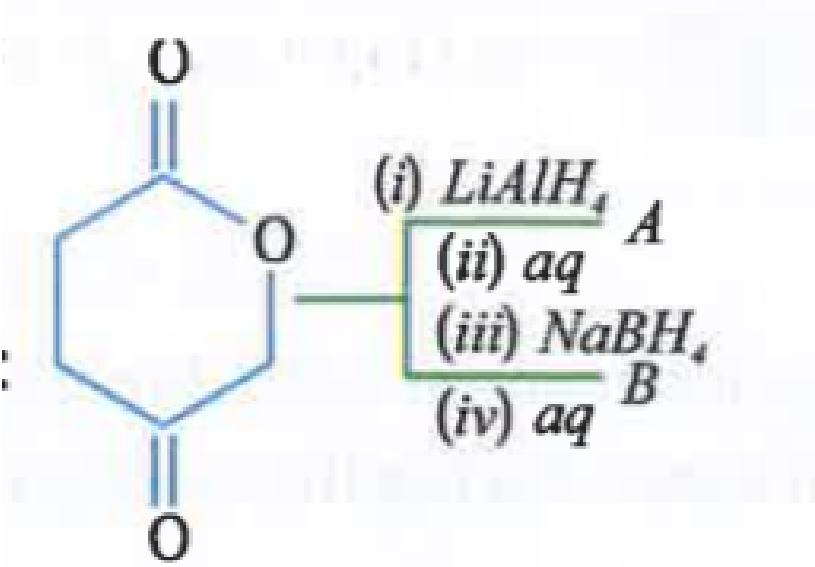
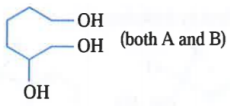
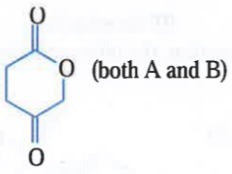
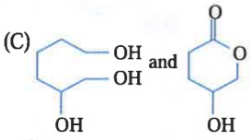
7. The product A and B in the reaction given below are :



A. (A)  (both A and B)

B. (B)  (both A and B)

C. (C) 

D. None of these

Answer: (C)

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8. 

is the final product obtained when one of the following reacted with base

.

A. 

B. 

C. 

D. 

Answer: (A)

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9. End product of the following sequence of reaction is

$$CH \equiv CH \xrightarrow{CH_3MgBr} \xrightarrow{CO_2 / H_3O^+} \xrightarrow{HgSO_4 / H_2SO_4} \xrightarrow[\Delta]{Ag_2O}$$

A. 

B. 

C. 

D. 

Answer: (B)

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10. Which of the following are examples of aldol condensation ?

1. $2CH_3CHO \xrightarrow{dil.NaOH} CH_3CHOHCH_2CHO$

2. $2CH_3COCH_3 \xrightarrow{dil.NaOH} CH_3COCH(CH_3)CH_2COCH_3$

3. $2HCHO \xrightarrow{dil.NaOH} CH_3OH + HCOOH$

4. $C_6H_5CHO + HCHO \xrightarrow{dil.NaOH} C_6H_5CH_2OH$

A. 2,3

B. 1 , 3

C. 1 , 2

D. 1,2,3

Answer: (C)

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11. Match list I (reaction) with list II (Reagent) and select the correct answer using the codes given below :

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12. Mononitration of phenyl benzoate gives the major product :

A. 

B. 

C. 

D. 

Answer: (C)

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13. Identify the final product

A. $C_6H_5-\underset{\underset{O}{||}}{C}-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-CH_3$

B. $H_5C_6-\underset{\underset{CH_3}{|}}{\overset{\overset{C_6H_5}{|}}{C}}-\underset{\underset{O}{||}}{C}-CH_3$

C. $C_6H_5-\underset{C_6H_5}{\overset{CH_3}{C=C}}-CH_3$

D. None of these

Answer: (B)

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14. In the reaction

$\xrightarrow{NaOH/200^\circ C}$ $\xrightarrow{H^\oplus/H_2O}$ the major product is :

A. 

B. 

C. 

D. 

Answer: (C)

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15. Identify the product (B)

A. 

B. 

C. Both (A) and (B) formed

D. 

Answer: (B)

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16. Which of the following reagent on reaction with conc. $NaOh$ followed by $H^{\oplus}$ gives following easter ?

A. 

B. 

C. 

D. 

Answer: (B)

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17. 

A. 

B. 

C. 

D. 

Answer: B

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18. 

A+B Compound (A) and (B) can be differentiated by :

A. 2- 4 -DNP

B. Fehling solution

C. Lucas reagent

D. $NaHSO_3$

Answer: B

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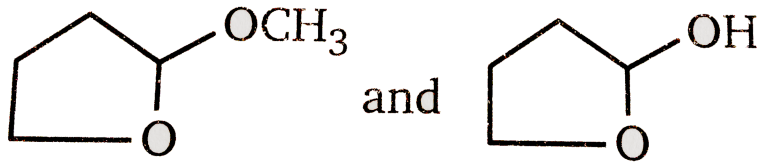

19.

Above compounds can be differentiated by following reagent :

A. 2-4 DNP (Brady reagent)

B. Tollen' reagent

C. Lucas reagent

D. $NaHSO_3$

Answer: B

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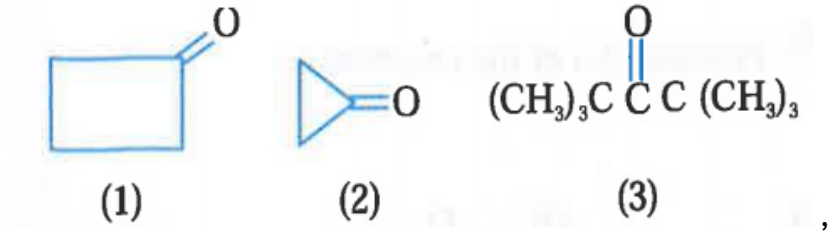
20. Rank the following in order of increasing value of the equilidrium constan for hydration, K_{hyd}.



(1) (2) (3)

A. $1 < 2 < 3$

B. $3 < 1 < 2$

C. $2 < 1 < 3$

D. $2 < 3 < 1$

Answer: B

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21. $Ph - \overset{O}{\overset{||}{C}} - CH_3 \xrightarrow[HCl]{NaNO_2} (A) \xrightarrow[\text{heat}]{AC_2O} (B) \xrightarrow{H_3O^+} (C)$

Product (C) of the above reaction is :

A. $Ph - CO_2H$

B. $Ph - \overset{O}{\overset{||}{C}} - CO_2H$

C. $Ph - \overset{O}{\overset{||}{C}} - \overset{O}{\overset{||}{C}} - H$

D. $Ph - \overset{O}{\overset{||}{C}} - CH_2OH$

Answer: B

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22.

Positive Tollens test Compound (A) is :

A. $CH_3-\overset{\overset{O}{||}}{C}-\underset{\underset{OCH_3}{|}}{CH}-\underset{\underset{OCH_3}{|}}{CH_2}$

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

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

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

Answer: C

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23. Which of the following pairs of reactants is most effective in forming an enamine ?

A. $CH_3CH_2.\overset{\overset{O}{||}}{C}H+\left[(CH_3)_2CH\right]_2NH$

B. 

C. $(CH_3)_3\overset{\overset{O}{||}}{C}CH+(CH_3)_2NH$

D. None of these an enamine

Answer: C

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24. 

Product (C) of the reaction is

A. 

B. 

C. 

D. 

Answer: B

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25. In the reaction , the acid obtained will be :

$$CH_3CHO + HCN \rightarrow CH_3CH(OH)Cn \xrightarrow{H-OH} CH_3CH(OH)COOH$$

A. D-isomer

B. L- isomer

C. 80%D+20%L) mixture

D. (50%D+50%L) mixture

Answer: D

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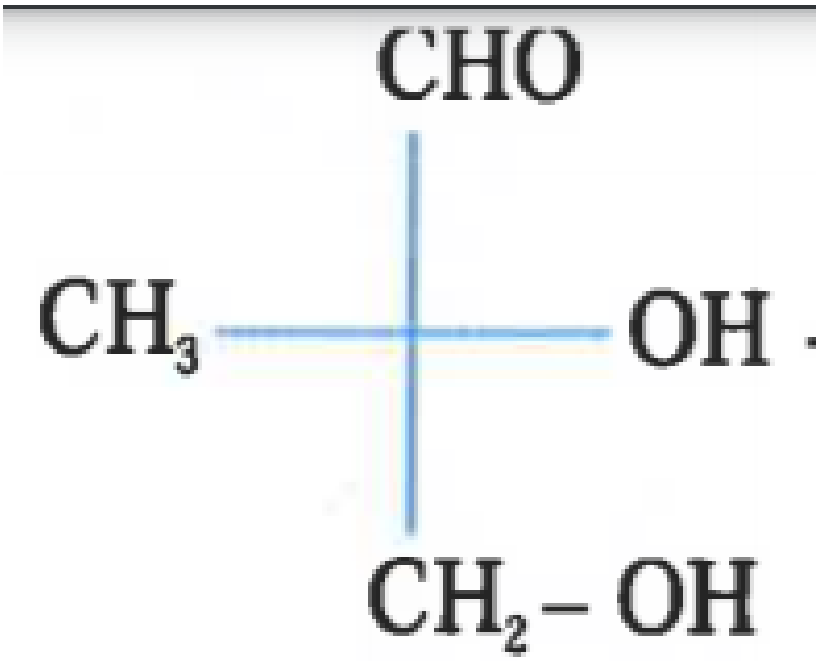

26.

$\xrightarrow[(ii)\,H^+]{(i)\,HCN}$ Product , Product obtained in the reaction is : D-(+) - Glyceraldelyde

A. Diastereomer

B. Racemic

C. Meso

D. Optiocally pure enantiomer

Answer: A

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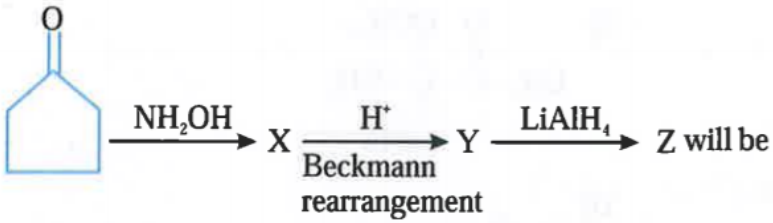
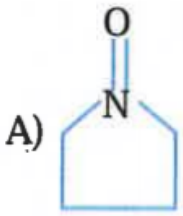
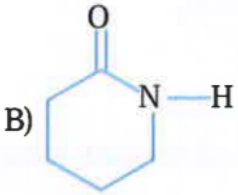
27. Complete the following reaction

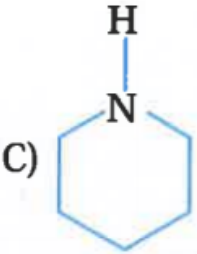




A.

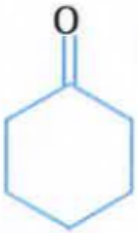


B.



C.

D)



D.

Answer: C

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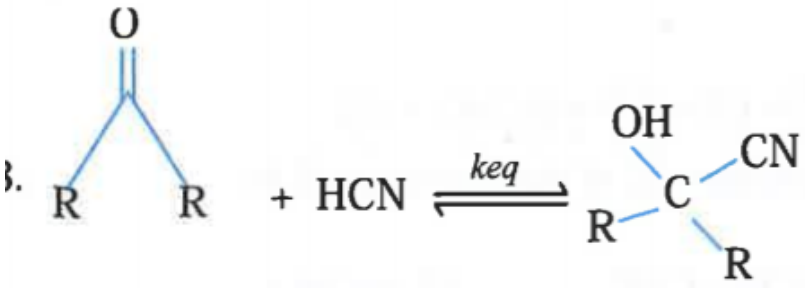
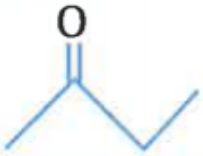
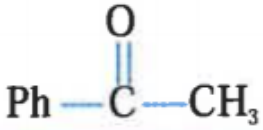
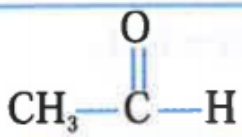


Reactant	K_{eq}
PhCHO	a
	b
	c
	d

28.

The correct order of decreasing value of K_{eq} is :

A. $a > b > c > d$

B. $d > a > b > c$

C. $d > b > a > c$

D. $d > a > c > d$

Answer: B

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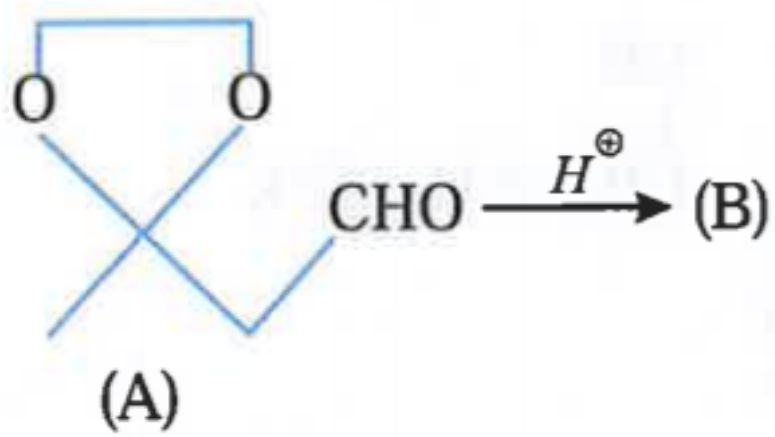
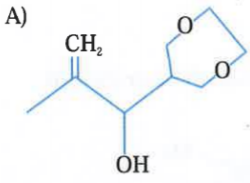
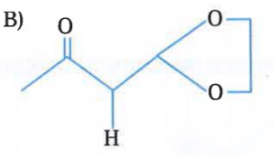


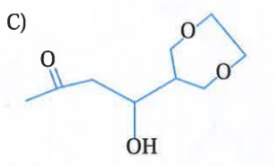
29.

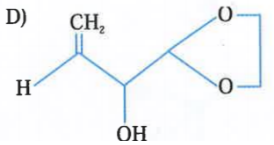
(A) & (B)` are isomers , Isomer (B) is :

A.



B. 

C. 

D. 

Answer: B

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30.

$$CH_3 - \overset{\overset{O}{||}}{C} - H \xrightarrow{HCN} (A) \xrightarrow{H_3O^{\oplus}} (B) \xrightarrow[\Delta]{} (C) \xrightarrow{LiAlH_4} (D) \xrightarrow{HIO_4} HCHO$$

+ (E)`

Compound (C) can show geometrical isomerism . Product (E) of the reaction will be :

A. $CH_3 - \overset{\overset{O}{||}}{C} - CH_3$

B. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - H$

C. $CH_3 - CHO$

D. HCHO

Answer: C

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31. 

A. 

B. 

C. 

D. 

Answer: A

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32. Methyl ketone on reaction with $LiCuMe_2$ gives a major product , whose structure is :

A. 

B. 

C. 

D. 

Answer: A

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33. Which of following is in capable to show iodoform test ?

A. 

B. $Ph - CH = CH - \overset{OH}{\overset{|}{C}}H - CH_3$

C. 

D. 

Answer: C

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34. 

Structure of is :

A. 

B. 

C. 

D. 

Answer: D

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35. 

Relation between K_1 and K_2 is :

A. $K_1 = K_2$

B. $K_1 > K_2$

C. $K_2 > K_1$

D. $K_1 = K_2 = 1$

Answer: B

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36.  . Compounds is : C. Compound (C) is :

A. 

B. 

C. 

D. 

Answer: A

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37. product A is :

A.

B.

C.

D.

Answer: B

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38. The enolate ion that reacts with 3- buten-2- one to form (Y) is :

A. 

B. 

C. 

D. 

Answer: C

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39. (A) $\xrightarrow[Zn\,/\,AcOH]{O_3} (B) + (C)C_7H_{14}$ Compound (A) exist in geometrical isomers and (B) Cannizaro reaction. (A) will :

A. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - \overset{\overset{CH_3}{|}}{C} = CH - CH_3$

B. $(CH_3)_3CCH_2 - CH = CH_2$

C. $(CH_3)_3C - CH = CH_2 - CH_3$

D. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2 - CH = CH_2$

Answer: C

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40. 

$\xrightarrow[(\text{conjugate-addition})]{HO^-}$ (A) , product (A) is :

A. 

B. 

C. 

D. 

Answer: C

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41.

$$CH_3 - \overset{OH}{\underset{|}{C}}H - CH_2 - \overset{O}{\underset{||}{C}} - H \xrightarrow[(\text{Reduction aldol})]{HO^-} (A), 3HCHO + A \xrightarrow[40^\circ C]{Na_2CO_3} (8$$

Product (B) of the above reaction is:

A. $HO - CH_2 - \overset{CH_2OH}{\underset{CH_2OH}{\overset{|}{\underset{|}{C}}}} - CH_2OH$

B. $HO - CH_2 - \overset{CHO}{\underset{CH_2 - OH}{\overset{|}{\underset{|}{C}}}} - CHO$

C. $HO - CH_2 - \overset{CH_2OH}{\underset{CHO}{\overset{|}{\underset{|}{C}}}} - CH_2OH$

D.

Answer: C

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42. Base catalysed aldol condensation occurs with

A. Propanal

B. Benzaldehyde

C. 2- Methylpropanal

D. 2,2- dimethylpropanal

Answer: (A,C)

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43. Which of the following compounds will give a yellow precipitate with iodine and alkali ?

A. Isopropyl alcohol

B. Acetophenone, Acetaldehyde

C. Benzophanone

D. 3- pentanone

Answer: (A,B)

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44. Which of the following will undergo reaction with Alcoholic Choloroform

A. 

B. 

C. 

D. 

Answer: (A,B,C)

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45. $CH_3 - CHO \xrightarrow{NaOH} CH_3CH(OH)CH_2CHO$

In the aldol condensation of acetaldehyde represented above, which of the following intermediate species as obtained?

A. 

B. 

C. 

D. 

Answer: (A,B,C)

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46. Which of the following compounds will give a red precipitate on being heated with Fehling 's solution.

A. C_6H_5CHO

B. CH_3CHO

C. CH_3COCH_3

D. $C_6H_5CH_2CHO$

Answer: (B,D)

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47. Which of the following reactants on reaction with conc. NaOH followed by acidification gives following lactone as the main product ?

Lactone

A.

B.

C.

D.

Answer: (B,C)

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48. Suggest appropriate structures for the missing compounds. (The number of carbon atoms remains the same throughout the reactions). Compound (A),(B) & (C) can be

A. 

B. 

C. 

D. 

Answer: (A,B,D)

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49. An organic compound (A) reacts with H_2 to give (B) and (C) successively. On ozonolysis of (A) , two aldehydes (D) C_2H_4O and (E) $C_2H_2O_2$ and On ozonolysis of (B) only propanal is formed. Compound (A), (D) & (E) are

A. 

B. 

C. 

D. CH_3CHO

Answer: (B,C,D)

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50. An unknown compound of carbon , hydrogen and oxygen contains 69.77 % C and 11. 63% H, and has a molecular weight of 86 . It does not reduce Fehling solution but forms a bisulphate addition compound and gives a positive iodoform test. What are possible structures is

A. $CH_3CH_2CH_2COCH_3$

B. $H_3C - \overset{\overset{CH_3}{|}}{CH} - CH_2 - CHO$

C. $H_3C - \overset{\overset{CH_3}{|}}{CH} - C - \overset{\overset{O}{||}}{CH_3}$

D. $H_3C - \overset{\overset{CH_3}{|}}{CH} - CH_2COOH$

Answer: (A,C)

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51. Product can be

A. 

B. 

C. 

D. 

Answer: (A,B,C,D)

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52. Acetophenone can participate in

A. Aldol reaction

B. Cannizaro 's reaction

C. Haloform reaction

D. None of the above

Answer: (A,C)

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53. CH_3CHO can be converted into carboxylic acid salt by using

A. $NaOI$

B. CH_3CO_3H

C. Ag_2O

D. $NaOH$

Answer: (A,B,C)

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54. $CH_3 - CHO$ can be participated in

A. Iodoform reaction

B. Aldol reaction

C. Cannnizaro 's reaction

D. Tischenko reaction

Answer: (A,B,D)

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55. Which compound (s) on reaction with $\overset{\Theta}{O}H$ can give two organic products (excluding stereoisomers)?

A. CH_3CHO

B. $HCHO$

C. $CH_3 - COOEt$

D. $CCl_3 - CHO$

Answer: (B,C,D)

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56. The reaction is oxidation - reduction type and takes place in presence of 50% aqueous or ethanolic alkali One molecule of the aldehyde (missing of a- hydrogen atom)oxidizes, to corresponding carboxlic acid and the other is being reduced to the corresponding alcohol.

Mechanism : the mechanism involves two distinct steps Nucleophilic

attack and hydride ion transfer.

A. 

B. 

C. 

D. 

Answer: (A)

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57. The reaction is oxidation - reduction type and takes place in presence of 50% aqueous or ethanolic alkali One molecule of the aldehyde (missing of a- hydrogen atom)oxidizes, to corresponding carboxlic acid and the other is being reduced to the corresponding alcohol.

Mechanism : the mechanism involves two distinct steps Nucleophilic

attack and hydride ion transfer.

A. 

B. 

C. 

D. All of these

Answer: (A)

View Text Solution

58. The reaction is oxidation - reduction type and takes place in presence of 50% aqueous or ethanolic alkali One molecule of the aldehyde (missing of a- hydrogen atom)oxidizes, to corresponding carboxlic acid and the other is being reduced to the corresponding alcohol.

Mechanism : the mechanism involves two distinct steps Nucleophilic

attack and hydride ion transfer.

A. The A is

A. Lactic acid

B. Mandelic acid

C. Salicyic acid

D. Malonic acid

Answer: (B)

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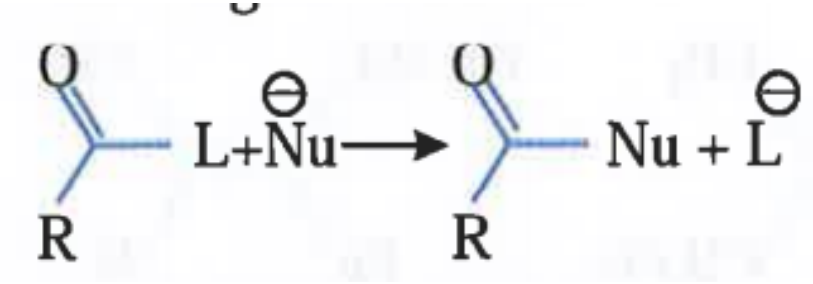
59. Aldehyde, ketone, carboxylic acid derivatives contain C= O group. Aldehyde and ketones give nucleophilic addition reactions where as acid and acid derivatives give nucleophilic addition followed by elimination reactions. Nucleophilic addition reactions followed by elimination of acid dervatives is Known sacyl substitution reaction. This substitution reaction

takes place by formation of tetrahedral intermediate. For the given reaction



which of these is correct ?

A. L must be better leaving group than Nu

B. Nu^- must be strong enough nucleophile to attack carbonyl carbon

C. Carbonyl carbon must be enough electrophilic to react with Nu^-

D. all of these

Answer: (D)

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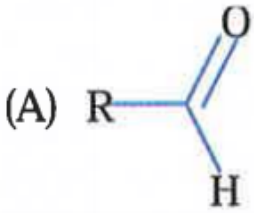
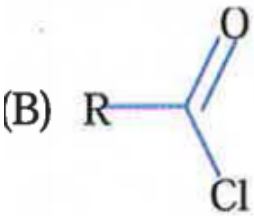
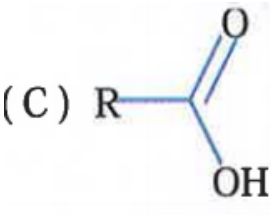
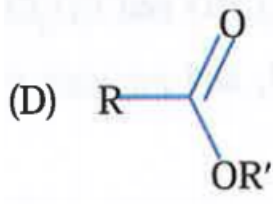
60. Which one the following compounds has very poor leaving froup?

A. 

B. 

C. 

D. 

Answer: (A)

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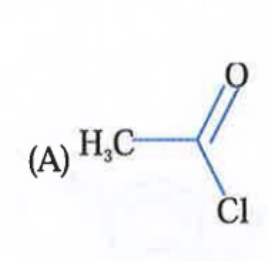
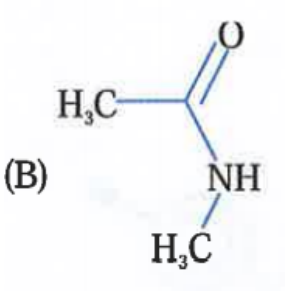
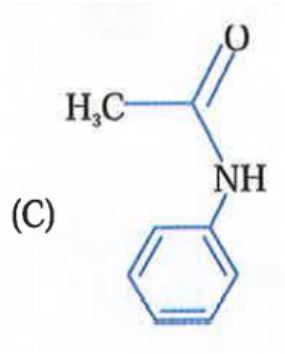
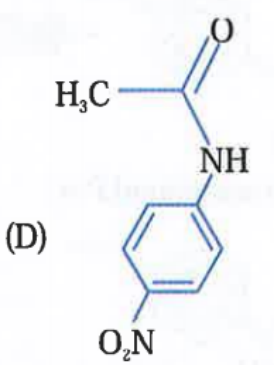
61. Which one of the following is least reactive compound for nulceophilic acyl aubstitution.

A. 

B. 

C. 

D. 

Answer: (B)

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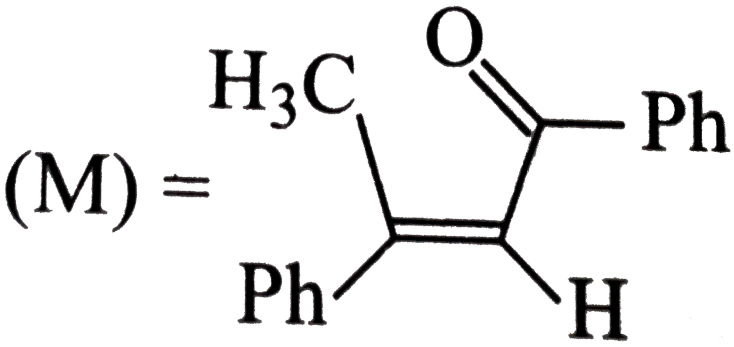
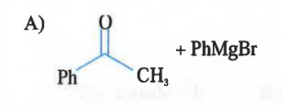
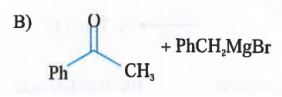
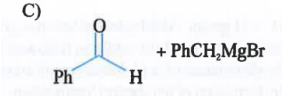
62. A tertiary alcohol (H) upon acid-catalysed dehydration gives a product (I). Ozonolysis of (I) leads to compounds (J) and (K). Compound (J) upon reaction with KOH gives benzyl alcohol and a compound (L), whereas (K) on reaction with KOH gives only (M).

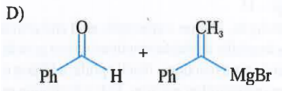


The structurer of compound (I) is:

A. 

B. 

C. 

D. 

Answer: (B)

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63. A tertiary alcohol H upon acid- catalyzed dehydration gives a product I. Ozonolysis of to compounds J and K. Compound J upon reaction with KOH gives benzly alcohol and a compound L, whereas K on reaction with KOH gives only M.

The structure of compound I is

A. 

B. 

C. 

D. 

Answer: (A)

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64. A tertiary alcohol H upon acid- catalyzed dehydration gives a product I. Ozonolysis of to compounds J and K. Compound J upon reaction with

KOH gives benzly alcohol and a compound L, whereas K on reaction with KOH gives only M.

The structures of compound J,K and L respectively , are

A. $PhCOCH_3$, $PhCH_2COCH_3$ and $PhCH_2COO^-K^+$

B. $PhCHO$, $PhCH_2CHO$ and $PhCOO^-K^+$

C. $PhCOCH_3$, $PhCH_2CHO$ and $CH_3COO^-K^+$

D. $PhCHO$, $PhCOCH_3$ and $PhCOO^-K^+$

Answer: (D)

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65. 

The compound P is :

A. 

B. 

C. 

D. 

Answer: (C)

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66.  The compound Q is :

A. 

B. 

C. 

D. 

Answer: (B)

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67. 

The compound R is :

A. 

B. 

C. 

D. 

Answer: (A)

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68. Observe the following reaction :

$$Ar-C-H \overset{OH^-}{\Longleftrightarrow} [X] \overset{Ar-\overset{O}{\overset{||}{C}}-H}{\Longleftrightarrow} [X]+[Z] \overset{H^+ \text{Transfer}}{\Longleftrightarrow} Y^1+Z^1$$

The slowest step of the reaction is :

A. 1

B. 2

C. 3

D. 1

Answer: (B)

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69. Observe the following reaction :

$$Ar - C - H \overset{OH^-}{\Longleftrightarrow} [X] \overset{Ar-\overset{O}{\overset{||}{C}}-H}{\Longleftrightarrow} [X] + [Z] \overset{H^+ \text{Transfer}}{\Longleftrightarrow} Y^1 + Z^1$$

Rate of step -2 will be fastest with the combination of :

A. 

B. 

C. 

D. 

Answer: (D)

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70. Observe the following reaction :

$$Ar - \underset{\underset{O}{\|}}{C} - H \overset{OH^-}{\Longleftrightarrow} [X] \overset{Ar-\underset{\underset{O}{\|}}{C}-H}{\Longleftrightarrow} [Y] + [Z] \overset{H^+}{\Leftrightarrow} Y^1 + Z^1$$

In step -3 if Y transfers H^- ion to Z, then Y' and Z' are respectively :

A. $PhCOO^- + PhCH_2OH$

B. $PhCOOH + PhCH_2O^-$

C. $PhCOO^- + PhCH_2O^-$

D. $PhCOOH + PhCH_2OH$

Answer: (A)

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71. $P + Q \xrightarrow[\Delta]{Aq.K_2CO_3} R \xrightarrow{HCN} S \xrightarrow[\Delta]{H_3O^+} Ph = CH - \underset{\underset{OH}{|}}{C}H - COOH$

The compounds P and Q are :

A. $Ph - CH = O + CH_3CH = O$

B. $Ph - CH_2 - CH = O + CH_3 - CH = O$

C. $Ph - CH = O + CH_3 - CH_2 - CH = O$

D. $Ph - CH = O + CH_2 = O$

Answer: (A)

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72. $P + Q \xrightarrow[\Delta]{Aq.K_2CO_3} R \xrightarrow{HCN} S \xrightarrow[\Delta]{H_3O^+} Ph = CH - \underset{OH}{\underset{|}{C}}H - COOH$

The compound R is :

A. $Ph - CH_2 - CH = O$

B. $Ph - CH = CH - CH = O$

C. $Ph - CH_2 - \underset{O}{\underset{||}{C}} - CH_3$

D. $Ph - CH_2 - CH = CH - CHO$

Answer: (B)

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73. $P + Q \xrightarrow[\Delta]{Aq.K_2CO_3} R \xrightarrow{HCN} S \xrightarrow[\Delta]{H_3O^+} Ph = CH - \underset{OH}{\underset{|}{C}}H - COOH$

The compound S is :

A. $Ph = CH = CH - CN$

B. $Ph - CH = CH - \underset{OH}{\underset{|}{C}}H - CN$

C. $Ph - \overset{OH}{\overset{|}{\underset{CN}{\underset{|}{C}}}} - CH = CH_2$

D. $Ph - CH_2 - CH = Ch - \underset{OH}{\underset{|}{CH}} - CN$

Answer: (B)

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74.

The structure of alkene (P) is

A.

B.

C.

D.

Answer: (D)

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75.

The structure of product (R) is

A.

B.

C.

D. 

Answer: (D)

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76. match the following

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77. Match the following?

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78. Match compound of List -I with pKa of List -II

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79. Aldol condensation proceeds by carbon- carbon bond formation between an enolation donor and a carbonyl acceptor For each of the following aldol products (1 through 4)

Match the donor and acceptor compound.

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80. Match the compounds// ions in Column- 1 with their properties in Column -2

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81. Match the reaction in column I with appropriate type of steps// reactive intermediate involved these reaction as given in column II.

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82. Column I Column II

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83. STATEMENT -1: Aldehydes are more Reactive then corresponding ketone for Nucleophillic reactions

STATEMENT -2: Due to electron density at functional group carbon which is higher in ketone than in Aldehyde.

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84. STATEMENT -1: When Ph -CHO is treated with conc. OH^- , formation of $PhCH_2$ OH and $PhCOO^-$ takes place.

STATEMENT -2:It involves hydride transfer, hence one molecule is reduced and another is oxidized.

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85. STATEMENT -1: HCHO is more reactive then CH_3COCH_3 towards nucleophilic addition reaction

STATEMENT -2: In CH_3COCH_3, $-$ CH_(3)` shows -I effect

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86. STATEMENT -1: Alphatic Ketone are Less reactive then aliphatic aldelyde

STATEMENT -2 :Rate of Electrophillic addition and substitution in aliphatic aldehyde is faster then aliphatic ketones

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87. STATEMENT -1: Rate of Nucleophillic addition of p- Nitrobenzaldehyde is faster then p- Methoxybenzaldehyde

STATEMENT -2: Presence of electron withdrawing group increases rate of Reactionn in carbonyl compound for Nuclephillic reaction.

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88. STATEMENT -1: Boiling point of ketones is higher then corresponding Aldehyde.

STATEMENT -2 : Dipolemoment of Aldehyde is higher then Ketone.

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89. STATEMENT -1: Cannizzaro reaction Methanal & Benzaldehyde forma Methanol and Benzoic acid salt

STATEMENT -2 : Methanal is more reactive then Benzaldehyde

A. STATEMENT -1: Amixture of

 on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

B. STATEMENT -1: Amixture of

 on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

C. STATEMENT -1: Amixture of

 on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

D. STATEMENT -1: Amixture of

 on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

Answer: (D)

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90. STATEMENT -1: Amixture of  on treatment with dil . $NaOH$ gives 

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

A. STATEMENT -1: Amixture of  on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

B. STATEMENT -1: Amixture of  on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

C. STATEMENT -1: Amixture of

 on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

D. STATEMENT -1: Amixture of

 on treatment with dil . $NaOH$ gives

STATEMENT -2 : The ketone is very hindered and conjugated and so less reaction than aldehyde.

Answer: (A)

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91. STATEMENT -1: The addition of amines in aldehyde and ketone is carried out in weakly acidic medium

STATEMENT -2 : In strong acidic medium amines will protonated the nucleophilic character of amine decrease.

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92. STATEMENT -1: RCOCl fails to give ketone with RMgX

STATEMENT -2 : RCOCl give ketone with R_2Cd

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93. Complete the following reactions and findout number of carbon atmos present in compound (D)

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94. The rate equation found in Benzillic acid -Benzil rearrangement is $rate = k[Ph - CO - CO - Ph]^a\left[OH^-\right]^b$ then a+b is

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95. An organic compound 'A' on treatment with ethyl alcohol gives a carboxylic acid 'B' and compound 'C'. Hydrolysis of 'C' under acidic conditions gives 'B' and 'D' . Oxidation of 'D ' with $KMnO_4$ also gives 'B' . 'B' on heating with $Ca(OH)_2$ gives 'E' `(C_(3)H_(6)O). E does not give Tollen 's test and does not reduce Fehling 's solution but form a 2,4-dinitrophenyl hydrazone . How many carbon are present in product (E).

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96. The commonly observed ratelaw of Benzoin condensation is rate = $K[ArCHO]^x\left[CN^-\right]^y$ Then the value of x+y is

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97. The order of Canizzarro ' s reaction when base concentration is high.

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98. During Perkin ' s reaction , a cyclic intermediate is formed. The no . Of atoms in the newly formed ring is

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99. In Witting reaction, a cyclic intermediate is formed called oxaphosphetane. The no. of atoms involved in the ring formation.

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Level Vi

1. In the Cannizzaro reaction given below:

$2Ph - CHO \xrightarrow{\overset{\Theta}{OH}} Ph - CH_2OH + PhCO_2^-$ the slowest step is:

A. the attack of OH^- at the carbonly group

B. the transfer of hydride to the carbonyl froup

C. the abstraction of proton from the carboxylic acid

D. the deprotonation of $Ph - CH_2OH$

Answer: B

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2. In which of the following substrates, rate of Benzoin condensation will be maximum?

A. 

B. 

C. 

D. 

Answer: A

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3. End products of the following sequence of reaction is

$\xrightarrow[(ii)\,H^+,\,\Delta]{(i)\,NaOI,\,\Delta} A + B$, A& B are`

A. 

B. 

C. 

D. 

Answer: D

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4. Compound (A), $C_5H_{10}O$, forms a phenylhdrazone, gives regative Tollens' and iodoforms tests and is reduced to pentane. What is the compound ?

A. A primary alcohol

B. A secondary alcohol

C. An aldehyde

D. A ketone

Answer: D

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5. What is A in the following reaction ?

$\xrightarrow[t-BuOk]{t-BuOK} A$

A. 

B. 

C. 

D. 

Answer: C

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6. Given the end product of the following reaction sepuence :

A. 

B. 

C. Both (A) & (B)

D. 

Answer: A

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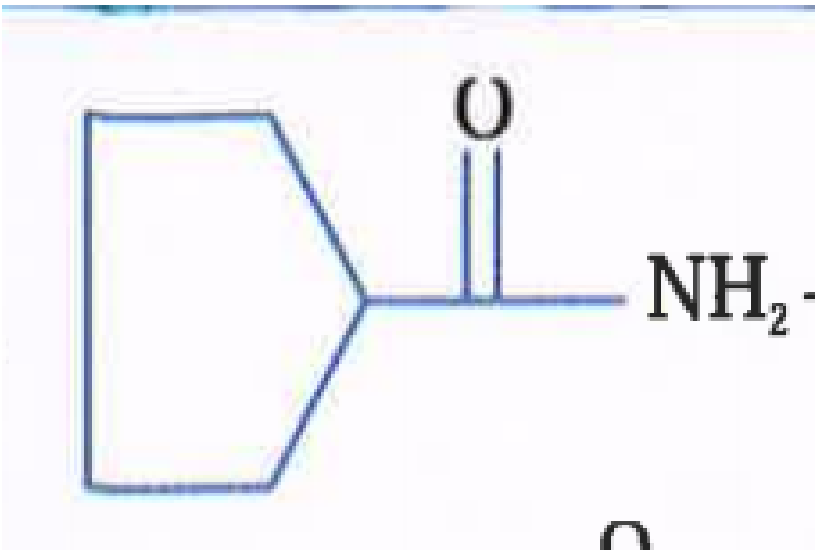
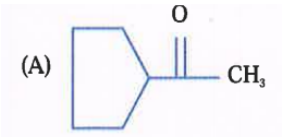
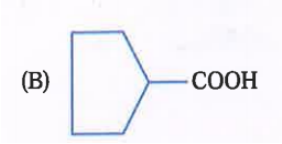
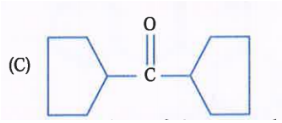
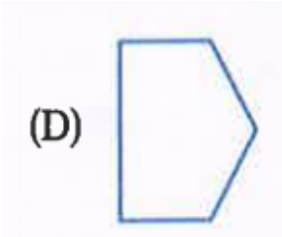
7. 

$$\xrightarrow{P_4O_{10}} A \xrightarrow{CH_3MgBr.H_3O^+} B \xrightarrow{Ca(OH)_2.I_2} C \xrightarrow{\Delta} D, D \quad is$$

A. 

B. 

C. 

D. 

Answer: C

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8. Three equivalents of aluminiumchloride on reacting with

predominantly gives

A. 

B. 

C. 

D. 

Answer: B

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9. 

A. 

B. 

C. 

D. 

Answer: C

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10. 

A. 

B. 

C. 

D. 

Answer: A

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11. Which of the following statements is correct regarding the following reaction ?

A. Diasetereomers are formed .

B. C_1 is more reaction then C_2

C. C_2 is more reactive then C_1

D. C_1 is more reactive towards $LiAlH_4$ after product formation .

Answer: B

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12. Which of the following gives

on reaction with a base

A. 

B. 

C. 

D. 

Answer: A

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13. 

Increasing order of hydrateformation is

A. I lt II lt III lt IV

B. IV gt III gt II gt I

C. II gt I gt III gt IV

D. Ilt II lt III gt IV

Answer: C

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14. 

A. 

B. 

C. 

D. 

Answer: B

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15. 

A. 

B. 

C. 

D. 

Answer: D

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16. 

Which of the following statements regarding the above is correct ?

A. C2 is more reactive then C1 towards phenyl hydrazine.

B. 

is the intermediate

C. Reaction takes place in basic medium only

D. 

is the final product

Answer: D

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17. 

Product formed is

A. 

B. 

C. 

D. 

Answer: A

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18. 

product not dormed is

A. 

B. 

C. 

D. 

Answer: C

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19. 

Which of the following statements regarding the above reaction is correct ?

A. A & B are enantiomers.

B. Formation of C involves E 1 cB.

C. Reaction is disproportionate reaction.

D. Rate determining step involves attack of base on aldehyde.

Answer: B

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20. 

P , identitify P

A. 

B. 

C. 

D. 

Answer: C

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21. Which of the following on reductive ozonolysis followed by reaction with base gives

A. 

B. 

C. 

D. 

Answer: C

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22. 

products formed are

A. 

B. 

C. 

D. 

Answer: C

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23. The product of the following reaction is

A. 

B. 

C. 

D. 

Answer: A

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24. for the following conversion

the product formed is

A. 

B. 

C. 

D. 

Answer: A

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25. 

A. 

B. 

C. 

D. 

Answer: C

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26. 

the product formed is

A. 

B. 

C. 

D. 

Answer: A

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27. 

A. 

B. 

C. 

D. 

Answer: A

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28. In the following reaction sequence, the correct structure of X, Y and Z are :

$$H-C\equiv C-COOH \xrightarrow[(1)]{HgSO_4/H_2SO_4/H_2O} (X) \xrightarrow[(2)]{\text{Heating}} (Y) \xrightarrow{I_2/NaOH} (Z) + CH$$

A. 

B. $H_2=CH-COOH$ $\quad CH_3-\underset{\displaystyle OH}{\underset{|}{CH}}-COOH$ $\quad \underset{\displaystyle COONa}{\underset{|}{COONa}}$

C. $CH_3=\underset{\displaystyle O}{\underset{||}{C}}-COOH$ $\quad CH_3=CH-O$ $\quad HCOONa$

D. $O-CH-CH_2-COOH$ $\quad CH_3-CH=O$ $\quad HCOONa$

Answer: D

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29. 

A. 

B. 

C. 

D. 

Answer: A,B,C

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30. Identify the products among the following .

A. 

B. 

C. 

D. 

Answer: A,B,C,D

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31.  compound

which of the following statements are correct regarding the COMPOUND.

A. Compound is aromatic.

B. compound undergoes nucleophillic addition.

C. Nucleophillic addition - elimination takes place twice

D. reaction takes place in basic medium .

Answer: A,C

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32. 

A. 

B. 

C. 

D. 

Answer: A)C

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33. 

, A and other products formed are

A. 

B. 

C. 

D. 

Answer: A,C,D

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34. 

products formed are ?

A. 

B. 

C. 

D. 

Answer: A,C

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35. 

major products formed are ?

A. 

B. 

C. 

D. 

Answer: A,B

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36. 

The intermediate as well as final products feomed in the reaction .

A. 

B. 

C. 

D. 

Answer: A,B

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37. Which of the reaction are correct ?

A. 

B. 

C. 

D. 

Answer: B,C

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38. 

The intermediate as well as final products formed in the reaction .

A. 

B. 

C. 

D. 

Answer: A,B

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39. 

Which of the following atatements are correct for above rreaction ?

A. number of possible enolates are four

B. most stable enolate is

C. enol with least stearic hinderence ismost stable

D. 

is the major aldol.

Answer: A,B

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40. 

Possible enols in the reaction are ?

A. 

B. 

C. 

D. 

Answer: A,B,C,D

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41.  Products = ?

A. 

B. 

C. 

D. 

Answer: B

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42. Study the following reactants// product and choose the correct option of reagents for path X and Y respectively.

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43. An organic compound $(A), C_7H_6O$ gives positives test with Tollen's reagent,on treatment with alcoholic CN, (A) yields the compound $(B), C_{14}H_{12}O_2$. Compound (B) on reduction with Zn-Hg, HCl and dehyration gives an unsaturated compound (C), compound (D) , $C_{14}H_{12}O_2$. Compound (D) on heating with KOH undergoes rearrangement and subsequent acidification of rearranged products yields an acidic compound $(E), C_{14}H_{12}O_3$.

compound (A) cannot undergo

A. Benzoin condensation.

B. Cannizzaro reaction.

C. Aldol condensation.

D. Perkin condensation.

Answer: C

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44. An organic compound $(A), C_7H_6O$ gives positives test with Tollen's reagent,on treatment with alcoholic CN, (A) yields the compound $(B), C_{14}H_{12}O_2$. Compound (B) on reduction with Zn-Hg, HCl and dehyration gives an unsaturated compound (C), compound (D) , $C_{14}H_{12}O_2$. Compound (D) on heating with KOH undergoes rearrangement and subsequent acidification of rearranged products yields an acidic compound $(E), C_{14}H_{12}O_3$.

Structure of compound (B) is :

A. 

B. 

C. 

D. 

Answer: B

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45. An organic compound (A) C_7H_6O gives positive Tollens test . On treatment with alcoholic CN_(A) yeids compound (B) , $C_{14}H_{12}O_2$. Compound ion reduction with Zn-Hg, HCl and dehydration gives an unsaturated compound (C) ,which adds to one mole of Br_2/CCl_4 . The compound (B) on heating with HNO_3 yeids compound (D) $C_{14}H_{10}O_2$. Compound (D) on heating with KOH undergoes rearrgement and subsequent acidification of rearranged products yields an acidic compound (E) ,$C_{14}H_{12}O_3$.

Based on the above information answer the following

Structure of compound (E) is :

A.

B.

C.

D.

Answer: D

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46.

Based on the above answer the following

Which of the following statements regarding above sequence is incorrect ?

A. The reaction involves nucleophillic addition reaction.

B. Reaction involves a unimolecular step.

C. Rate of formation of white precipitate changes as $F^- > Cl^- > Br^- > I^-$

D. B on reaction with silver nitrate gives an aromatic compound.

Answer: B

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47.

Based on the above answer the following

$\xrightarrow{PCl_5}$

If H is replaced with CH_3COO^-, $ClCH_2COO^-$, C_2H_5COO, $PhSO_3-$ then rate of reaction is

A. $CH_3COO^- < ClCH_2COO^- < C_2H_5 < PhSO_3^-$

B. $PhSO_3^- < ClCH_2COO^- < C_2H_5COO < CH_3COO^-$

C. $C_2H_5COO < ClCH_2COO^- < CH_3COO^- < PhSO_3^-$

D. $C_2H_5COO < CH_3COO^- < ClCH_2COO^- < PhSO_3^-$

Answer: D

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48. 

Based on the above answer the following

$\xrightarrow[(3)\,Br_2/CCl_4]{(1)\,Sn/HCl\,(2)\,KOHBr_2}$ major product ?

A. 

B. 

C. 

D. 

Answer: B

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49. Aldol addition is nucleophllic addition reaction of carbonyl compound with enolate or enolate ion of aldehyde and ketones. The reaction

between two molecules of acetaldehyde takes place as following in the presence of base.

Simple aldol addition is given by :

A. C_6H_5CHO

B. $CX_3 - CHO$

C. $O_2N - Ph - CHO$

D. $C_6H_5 - CH_2 - CHO$

Answer: D

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50. Aldol addition is nucleophllic addition reaction of carbonyl compound with enolate or enolate ion of aldehyde and ketones. The reaction between two molecules of acetaldehyde takes place as following in the presence of base.

Driving force for the aldol condensation is :

A. Formation of conjugated carbonyl compound as a product

B. Formation and stability of enolate ion

C. Only the reactivity of carbonyl group for nucleophilic addition

D. all of these

Answer: b

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51. Aldol addition is nucleophllic addition reaction of carbonyl compound with enolate or enolate ion of aldehyde and ketones. The reaction between two molecules of acetaldehyde takes place as following in the presence of base.

Which carbonyl compound wll be most reactiove for aldol addition ?

A. $C_6H_5 - CH_2 - CHO$

B. $CH_3 - CHO$

C. 

D. 

Answer: C

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52. Grignard addition to carbonyl compounds is specific case of nucleophillic addition reaction which leads to formation of all type of alcohols $(1^\circ, 2^\circ \& 3^\circ)$ .In this addition the strongly nucleophlic Grignard reagent uses its electron pair to form a bond with the C - atom of $> C = O$ group, where one e^- pair of group ,shifts out towards oxygen . It results in the formation of an intermediate species in which alkoxide ion associated with Mg^{2+} and . Now addition of an intermediate of this species to give alcohol.

A. 

B. 

C. 

D. 

Answer: C

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53. Grignard addition to carbonyl compounds is specific case of nucleophillic addition reaction which leads to formation of all type of alcohols $(1^\circ, 2^\circ \& 3^\circ)$ .In this addition the strongly nucleophlic Grignard reagent uses its electron pair to form a bond with the C - atom of $> C = O$ group, where one e^- pair of group ,shifts out towards oxygen . It results in the formation of an intermediate species in which alkoxide ion associated with Mg^{2+} and . Now addition of an intermediate of this species to give alcohol.

In which of the following reacton product formed is correctiy given ?

A. I,II

B. II,III

C. I,III

D. I,II,III

Answer: D

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54. Grignard addition to carbonyl compounds is specific case of nucleophillic addition reaction which leads to formation of all type of alcohols $(1^{\circ}, 2^{\circ} \& 3^{\circ})$ .In this addition the strongly nucleophlic Grignard reagent uses its electron pair to form a bond with the C - atom of $> C = O$ group, where one e^{-} pair of group ,shifts out towards oxygen . It results in the formation of an intermediate species in which alkoxide ion associated with Mg^{2+} and . Now addition of an intermediate of this

species to give alcohol.

Here P and Q are respectively :

A. 

B. 

C. 

D. 

Answer: B

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55. P is an alcohol which on heating with Al_2O_3 forms an alkene Q. Q on ozonolysis produces R and S. when the mixture of R and S is heated with conc. $NaOH$, redox reaction takes place and a mixture of an acid salt and alcohol is formed.

the alcohol (P) is obtained by

A. $H_3C - \underset{\underset{O}{||}}{\overset{\overset{CH_3}{|}}{C}} - CH_2 - CH_3 + CH_3MgBr$

B. $CH_3 - \overset{\overset{CH_3}{|}}{CH} - CH_2 - CH = O + CH_3MgBr$

C. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2 - COCl + MgCl$

D. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH = CH_2$

Answer: D

View Text Solution

56. P is an alcohol which on heating with Al_2O_3 _ (3) forms an alkene Q. Q on ozonolysis produces R and S. when the mixture of R and S is heated with conc. $NaOH$, redox reaction takes place and a mixture of an acid salt and alcohol is formed.

The compound (Q) is

A. $CH_3 - \overset{\overset{CH_3}{|}}{C} = CH_3$

B. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH = CH - CH_3$

C. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_2 - CH = CH_2$

D. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH = CH_2$

Answer: D

View Text Solution

57. P is an alcohol which on heating with Al_2O_3 _ (3) forms an alkene Q. Q on ozonolysis produces R and S. when the mixture of R and S is heated with conc. $NaOH$, redox reaction takes place and a mixture of an acid salt and alcohol is formed.

The compound R and S are

A. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{}{C}} = O, CH_2 = O$

B. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} = CH = O, CH_3CH = O$

C. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH = O + CH_2 = O$

D. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH = O + CH_2 = O$

Answer: C

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58. Aldehyde and ketone undergo nucleophilic addition reaction because of polarity between $> C = O$ group . The reactivity of carbonyl groups toward nucleophile depends upon the nature of inductive effect of froup present at carbonyl carbon.

Which among the following is more reactive towards nucleophilic addition reaction

A. FCH_2CHO

B. $ClCH_2CHO$

C. $BrCH_2CHO$

D. ICH_2CHO

Answer: A

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59. Aldehyde and ketone undergo nucleophilic addition reaction because of polarity between $> C = O$ group . The reactivity of carbonyl groups toward nucleophile depends upon the nature of inductive effect of froup present at carbonyl carbon.

Which of the following is least reactive for nucleophilic addition reaction

A. $C_6H_5 - \overset{O}{\overset{||}{C}} - C_6H_5$

B. $C_6H_5 - \overset{O}{\overset{||}{C}} - CH_3$

C. $C_6H_5 - \overset{O}{\overset{||}{C}} - H$

D. $CH_3 - \overset{O}{\overset{||}{C}} - H$

Answer: A

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60. Aldehyde and ketone undergo nucleophilic addition reaction because of polarity between $> C = O$ group . The reactivity of carbonyl groups toward nucleophile depends upon the nature of inductive effect of froup present at carbonyl carbon.

Nucleophilic addition reaction over carbonyl compound is shown by :

A. $HCN + dil.\ NaOH$

B. $NaHSO_3$

C. $CH_3OH + HCl$

D. all of these

Answer: D

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61. The conversion of aldehyde having no alpha hydrogen to a mixture of carbonylc acid and primary alcohol is known as cannizzaro reaction. The most important features of this reaction is the conjugate base of hydrate of aldehye.

Order of the above reaction is

A. 1

B. 2

C. 3

D. 4

Answer: C

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62. The conversion of aldehyde having no alpha hydrogen to a mixture of carbonylc acid and primary alcohol is known as cannizzaro reaction. The

most important features of this reaction is the conjugate base of hydrate of aldehye.

Write order of best hydride ion donar in cannizzaro reaction

A. III gt IIgt IV gt I

B. II gt IV gtIII gt I

C. IIgt III gt I gt IV

D. III gt I gt II gt IV

Answer: A

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63. The conversion of aldehyde having no alpha hydrogen to a mixture of carbonylc acid and primary alcohol is known as cannizzaro reaction. The most important features of this reaction is the conjugate base of hydrate of aldehye.

Which of the following cannot undergo intramolecular cannizzaro reaction ?

A. $H-\underset{\underset{O}{||}}{C}-\underset{\underset{O}{||}}{C}-H$

B. $H-\underset{\underset{O}{||}}{C}-\underset{\underset{O}{||}}{C}-Ph$

C. $Ph-\underset{\underset{O}{||}}{C}-\underset{\underset{O}{||}}{C}-Ph$

D. All

Answer: C

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64. In presence of excess base and exces shalogen a methyl ketone is converted first into a trihalo substituted ketone and then into a carbonylc acid . After the trihalo substituted ketone is formed hydroxide ion attacks the carboxyl carbon because the trihalo methyl ion is the group more easily expelled from the tetrahedral intermediate .The

conversion of methyl ketone to a carboxylic acid is called a haloform reaction because one of the product is halofor $(CHCl_3)$ or CHI_3 or $CHBr_3$.

Which of the following compoud show haloform reaction and racemisation in OD^-/D_2O.

A. CH_3CH_2OH

B. 

C. 

D. $CH_3-\underset{\underset{O}{||}}{C}-\underset{\underset{Et}{|}}{CH}-Ph$

Answer: D

View Text Solution

65. In presence of excess base and exces shalogen a methyl ketone is converted first into a trihalo substituted ketone and then into a carbonylc acid . After the trihalo substituted ketone is formed hydroxide

ion attacks the carboxyl carbon because the trihalo methyl ion is the group more easily expelled from the tetrahedral intermediate .The conversion of methyl ketone to a carboxylic acid is called a haloform reaction because one of the product is halofor $(CHCl_3)$ or CHI_3 or $CHBr_3$.

A. $Ph-\underset{\underset{O}{||}}{C}-\overset{\overset{Me}{|}}{\underset{\underset{Et}{|}}{C}}-COOH$

B. $Ph-C-\underset{\underset{O}{||}}{C}-\underset{\underset{Et}{|}}{CH}-Me$

C. $Ph-\underset{\underset{O}{||}}{C}-\overset{\overset{Me}{|}}{O}-CH-Et$

D. $Ph-C-\underset{\underset{O}{||}}{C}-\underset{\underset{Et}{|}}{CH}-OEt$

Answer: B

View Text Solution

66. In presence of excess base and exces shalogen a methyl ketone is converted first into a trihalo substituted ketone and then into a carbonylc acid . After the trihalo substituted ketone is formed hydroxide ion attacks the carboxyl carbon because the trihalo methyl ion is the group more easily expelled from the tetrahedral intermediate .The conversion of methyl ketone to a carboxylic acid is called a haloform reaction because one of the product is halofor $(CHCl_3)$ or CHI_3 or $CHBr_3$.

Product " " is :`

A. 

B. 

C. 

D. 

Answer: A

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67. Match the column I and II

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68. Match the column -I , column -II

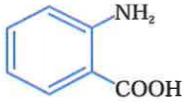
View Text Solution

69. Match the following

View Text Solution

70. Match the following column -I with Column -II

Match the following Column - I with Column - II

Column (I)	Column - II
(A) $CH_2 = C = CH_2 \xrightarrow{H_3O^+}$	(p) carbocation
(B)  $\xrightarrow[\text{(ii) Base}/\Delta]{\text{(i) } NaNO_2 + HCl}$	(q) carbene addition to C = C bond
(C) $CH_3-\underset{\underset{OH}{|}}{CH}-CH_2-CHO \xrightarrow[\Delta]{OH^-}$	(r) $E_{CB}1$
(D)  $\xrightarrow[\Delta]{CHCl_3 / OH^-}$	(s) benzyne

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71. Match the following Column -I with Column -II

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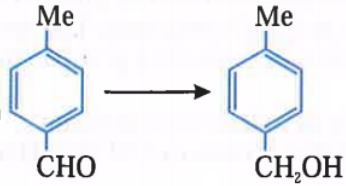
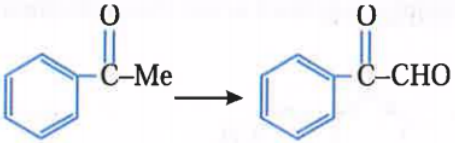
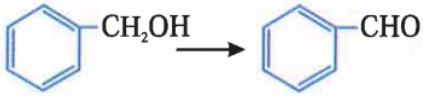
72. Match the following Column -I with Column -II

Match the following Column - I with Column - II

Column (I)	Column - II
(A) 	(p) $Ag(NH_3)_2^+$
(B) 	(q) MnO_2
(C) 	(r) HCHO, KOH
(D) 	(s) SeO_2

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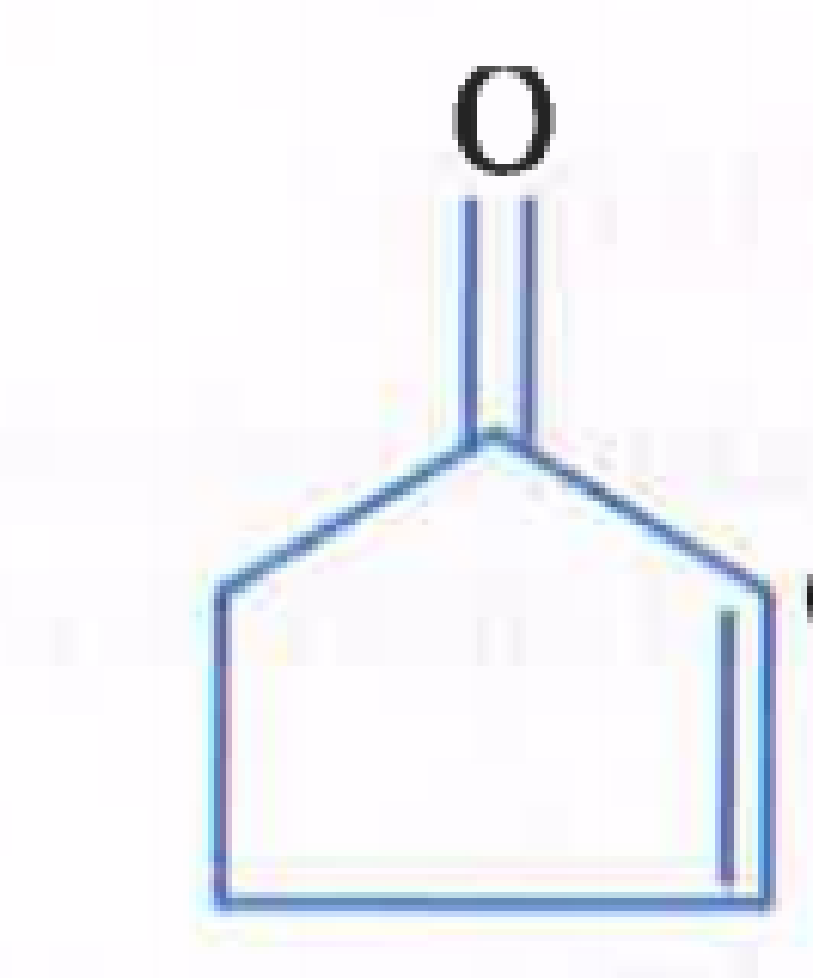
73. STATEMENT -I :



on reduction with `Na BH_(4) in ethannol gives cyclopentanol

STATEMENT -2 : Conjugate addition first occurs followed by second direct addition .

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: A

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74. Assertion: CCl_3CHO froms an isolable crystaline hydrate.

Reason : Electron withdrawing chlorine atoms stabilise hydrate by intramolecular H-bonding.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: A

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75. STATEMENT -I : Low molecualr weight carbonyl compounds are more soloble in water then the corresponding alkanes

STATEMENT -2 : H- bonding between carbonyl oxygen and water makes carbonyl compounds more water soluble then hydrocarbon .

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: A

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76. STATEMENT -I : Acetophenone and benzophenone can be distinguished by iodoform test

STATEMENT -2 : Acetophenone and benzophenone both are carbonyl compound.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: B

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77. STATEMENT -I : 2- methyl propanal does not give iodoform test

STATEMENT -2 : It does not have α - hydrogen .

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: C

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78. STATEMENT -I : Acetylene on treatment with alkaline $KMnO_4$ " product acetaldehyde"

STATEMENT -2 : " Alkaline" $KMnO_4$ is a oxidising agent.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: D

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79. Statement-I: Acetic acid does not undergo haloform reaction.

Because

Statement-II: Acetic acid has no α hydrogen.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: C

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80. STATEMENT -I : Benzaldehyde is more reactive then acetaldehyde towards nucleophilic addition

STATEMENT -2 : In benzaldehyde C=O group is resonance stabilised by phenyl ring.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is False, Statement -2 is true.

D. Statement - 1 and Statement -2 both are False.

Answer: D

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81. Assertion: Acetal are easily converted to parent carbonyl compound. The easy interconversion makes acetal attractive as protecting grouo to prevent carbonyl compound.

Reason : Acetal are easily hydrolysed in acidic as well as basic medium.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: C

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82. STATEMENT -I : Acetaldehyde react with nitromethane in presence of dil . $NaOH$ to give 1- nitro -2 propanol

STATEMENT -2 : The hydrogen atom of acetaldehyde s more acidic then nitromethene.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: C

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83. STATEMENT -I : The following conversion

can be done by using $NH_2 - NH_2 / KOH, \Delta$ n ot by $Zn - Hg / con.\ HCl.$

STATEMENT -2 : $Zn.\ Hg / HCl$ can affect $-OH$ group and shows aubstitution reaction.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: A

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84. STATEMENT -I : 

STATEMENT -2 : Polycarbonyl compound with α -H give intramolecular aldol condensation in alkaline medium , if it can form a stable ring.

A. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

B. STATEMENT-1 is True, Statement -2 is True , Stament -2 is a correct explanation for Statement -I.

C. Statement -1 is True, Statement -2 is False.

D. Statement - 1 and Statement -2 both are Fals

Answer: D

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85. Butanone + dil. $NaOH$ GIVES how many different aldol products (including stereoisomers)?

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86. $H_2C = O + D_2C = O + cons.\ NaOH \rightarrow$ Cannizzaro's reaction.

How many different alcohols would be formed in the reactions.

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87. 

how many different oxides are formed ?

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88. if ethanedial (HOC-COH) is teated with excess of HCN (aq) followed by hydrolysis of product results in diacids. How many different diacids would

be formed ?

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89. If $CH_2D - CHO$ is treated with dilute alkaline solution how many different aldols (excluding steroisomers) are expected ?

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90. How many of the following compounds will produce visible change when treated with $I_2 / NaOH$

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91. If penta -2,4 - dione is treated with $DCl / D2O$, isotopic exchange occurs via ketoenol tautomerism. By how many grams , will the molar mass increase from the increase from the strarting compound.

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92. When cyclohexanone and

+ X The no . Of hybrid orbitals of phosphorus involved formation X.

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93. Among the following how many compounds are ahowing both reactivity with $LiAlH_4$ & Aldol condensation & $I_2 / NaoH$?

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94. How many of the following can show both tautomerism, Hyper conjugation , & Aldol condensation

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95. 

Product (A) undergoes how many stroctoral isomers ?

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96. 

how many stereo centers are present in product

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97. How many of the following Reactions will give products that are diastereomers ?

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98. Which of the following is more reactive then

toward Nu^- Addition?

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99. How many of the following is reactive towards towards grigannard reagent ?

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