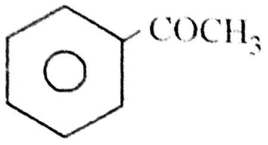
Aromatic carbonyl comp.

MCQ's

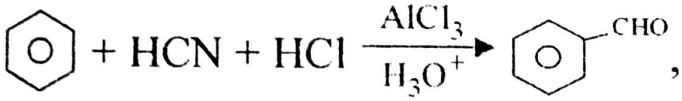
1) Carbonyl carbon is ..... hybridised
   a) SP^3 b) SP^2
   c) SP d) SP^2d

2) Which of the following is more reactive towards - nucleophilic addition reaction?
   a) HCHO b) Ph-CHO
   c)  d) $CH_3–CO–CH_3$

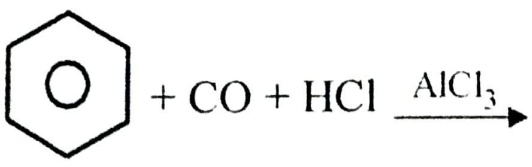
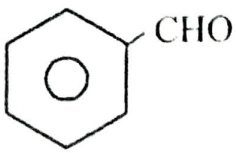
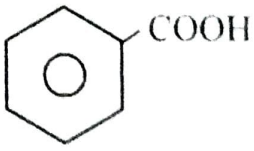
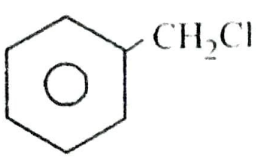
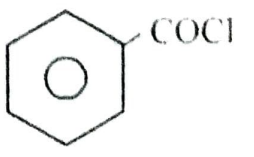
3) Aldehydes are oxidation products of ..... alcohol.
   a) Primary b) Secondary
   c) Tertiary d) All of these

4) pi-bond of carbonyl group is formed by ..... overlap.
   a) $SP^2 - SP^2$ b) SP – SP
   c) S – S d) P – P

5) Benzene is treated with mixture of HCN and HCl in presence of $AlCl_3$ to gives ....
   a) Benzoic acid b) Benzaldehyde
   c) Salicylaldehyde d) Acetophenone

6)  , the reaction is
   a) Gattermann b) Gattermann Koch
   c) Fridel-Craft d) Perkin

7) Benzene is treated with CO and HCl in presence of $AlCl_3$ to give .....
   a) Acetophenone b) Benzophenone
   c) Benzoin d) Benzaldehyde

8) 
   a)  b) 
   c)  d) 

9) Benzaldehyde is prepared from benzene and mixture of CO and HCl in presence of $AlCl_3$ is an .... reaction.

a) Gattermann
b) Gattermann-Koch
c) Perkin
d) Friedel-Craft

10) 1-phenyl ethanol on oxidation yields. (M/A 2011)

a) Benzoic acid
b) Benzaldehyde
c) Acetophenone
d) Ethyl benzene

11) Acetophenone is obtained by action of acetyl chloride on benzene, the reaction is ...

a) Gattermann
b) Gattermann-Koch
c) Friedel-Craft acylation
d) Hoffmann

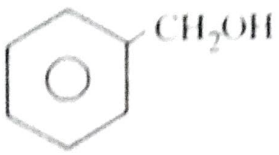
12) Acetophenone is obtained from 1-phenyl ethanol by ...

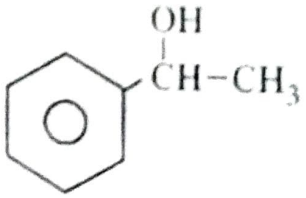
a) Oxidation
b) Reduction
c) Hydrolysis
d) Dehydration

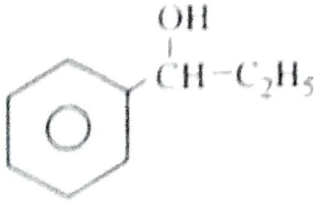
13) Benzene is treated with acetyl chloride in presence of $AlCl_3$ to give...

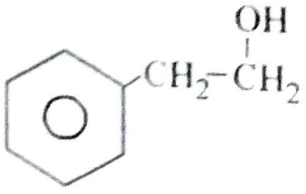
a) Benzoic acid
b) Phenyl acetate
c) Acetophenone
d) Benzophenone

14) Which of the following compound undergo oxidation to give acetophenone?

a) 

b) 

c) 

d) 

15) Aldehyde reacts with HCN to give ...

a) Acid
b) Cyanohydrin
c) Ketone
d) Ester

16) Benzaldehyde reacts with phenyl hydrazine to give ...

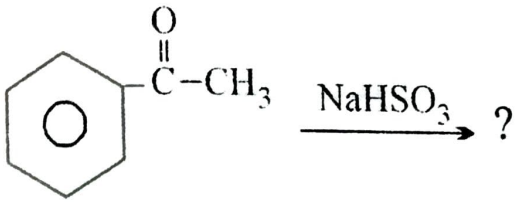
a) Toulene
b) Benzaldehyde phenyl hydrazine
c) Benzylamine
d) Benzaldehyde phenyl hydrazone

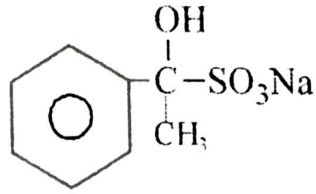
17) Hydrazone is obtained by action of hydrazine with ....

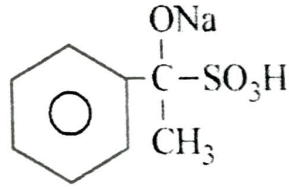
a) Alcohol
b) Acid
c) Ketone
d) Ester

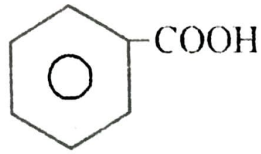
18) Acetophenone reacts with HCN to gives cyanohydrin. In this reaction carbonyl carbon undergoes ...

a) Electrophilic addition
b) Electrophilic substitution
c) Nucleophilic addition
d) Nucleophilic substitution

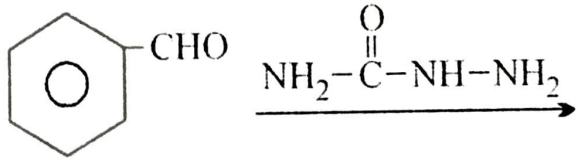
19) 

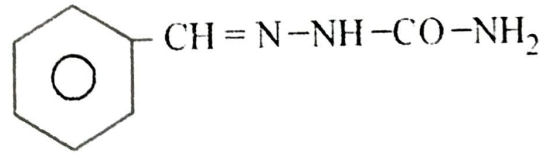
a) 

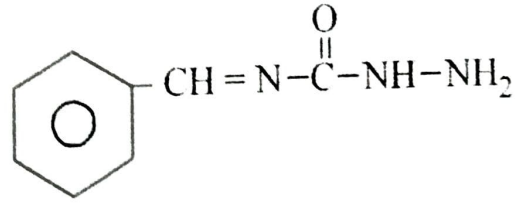
b) 

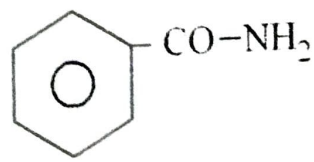
c) 

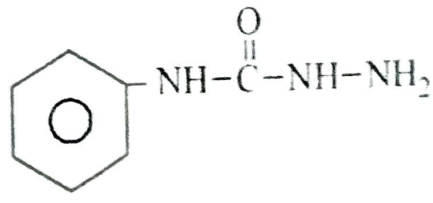
d) None of these

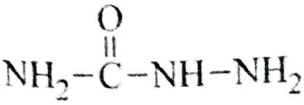
20)  A, A is ...

a) 

b) 

c) 

d) 

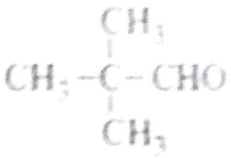
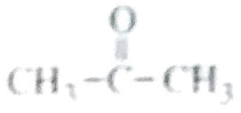
21)  is called as ...

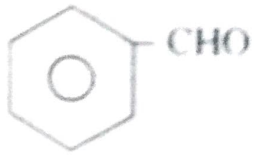
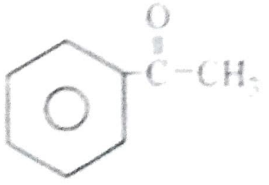
a) Carbazide
b) Urea
c) Hydrazine
d) Semicarbazide

22) Oximes are obtained by action of ketones with ....
a) Hydrazine
b) Phenyl hydrazine
c) Hydroxyl amine
d) Oxalic acid

23) Product of Aldol condensation is ...
a) α-hydroxy ester
b) β-hydroxyester
c) β-hydroxy ketone
d) α-hydroxy ketone

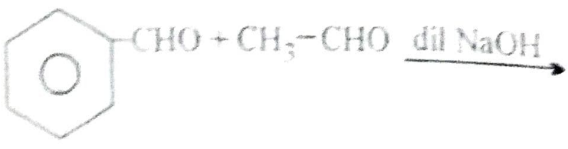
24) Aldehydes or ketones having ..... undergo self condensation in presence of dil. alkali to give Aldol.
a) β-hydrogen
b) α-hydrogen
c) β-halogen
d) α-halogen

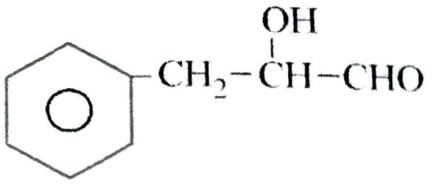
25) Which of the following compound does not undergo simple aldol condensation?
a) CH_3CHO
b) CH_3CH_2CHO
c) 
d) 

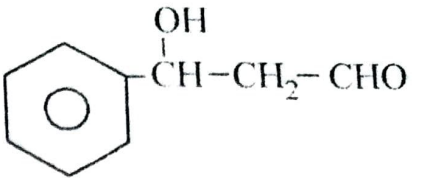
26) Which of the following compound undergo simple Aldol condensation?
a) HCHO
b) 
c) 
d) All of these

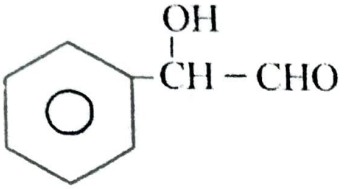
27) Stable intermediate generated during base catalysed Aldol condensation is ...
a) Carbonium ion
b) Free radical
c) Enolate ion
d) Enol

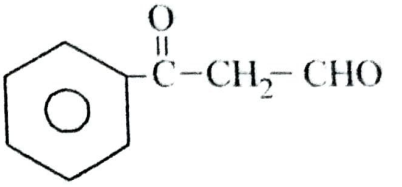
28) In acid catalysed aldol condensation, the intermediate is ...
a) Carbonium ion
b) Free radical
c) Enolate ion
d) Enol

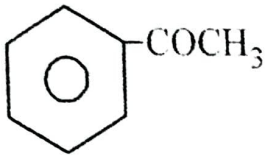
29) 

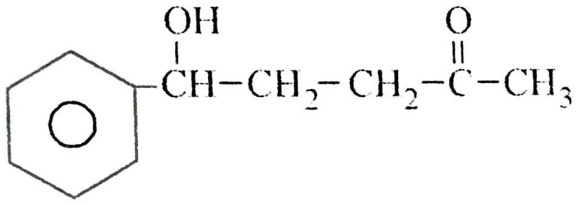
a) 

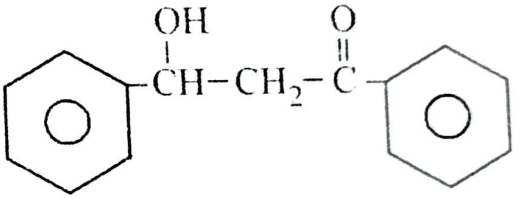
b) 

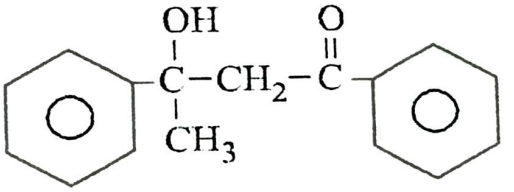
c) 

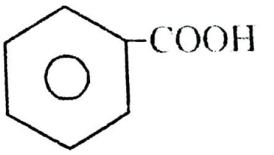
d) 

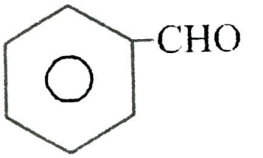
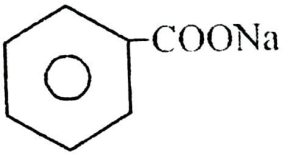
30) 2  $\xrightarrow{\text{dil NaOH}}$?

a) 

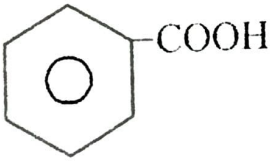
b) 

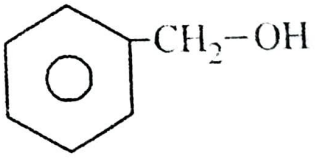
c) 

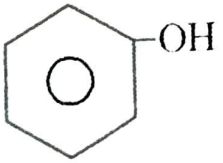
d) 

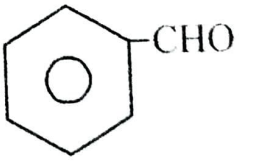
31) 2  $\xrightarrow{\text{Conc. NaOH}}$  + A

A is ...

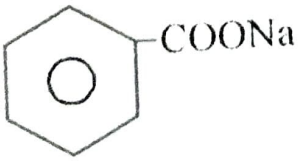
a) 

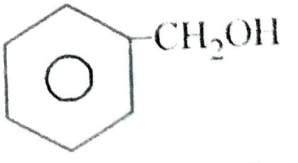
b) 

c) 

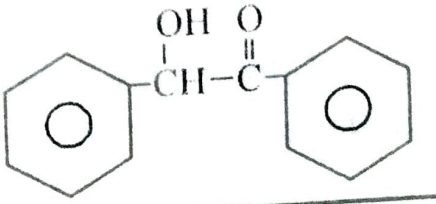
d) 

32) Two molecules of benzaldehyde undergo self oxidation-reduction in presence of Conc.NaOH to gives.

a) 

b) 

b) both a & b

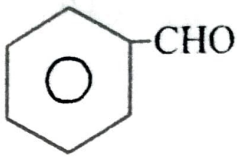
d) 

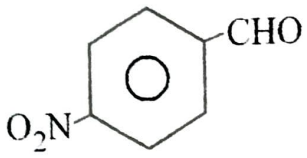
33) Aldehydes which does not have α-hydrogen undergo self oxidation reduction to give salt of acid & alcohol is an ..... reaction.

a) Cannizzaros
b) Aldol
c) Perkin
d) Knovengel

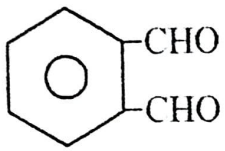
34) Which of the following deoes not undergo Cannizzaro's reaction?

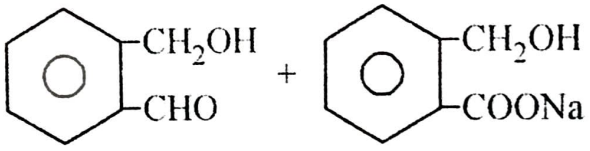
a) HCHO

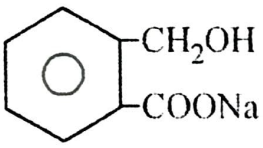
b) 

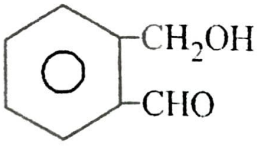
c) 

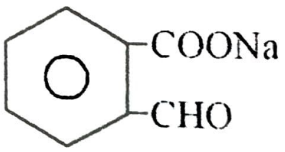
d) CH_3CHO

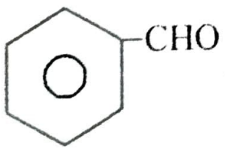
35)  $\xrightarrow{\text{conc. NaOH}}$ X, X is ...

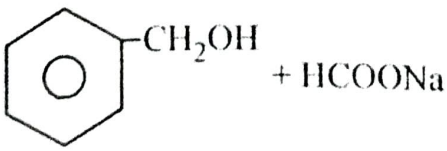
a) 

b) 

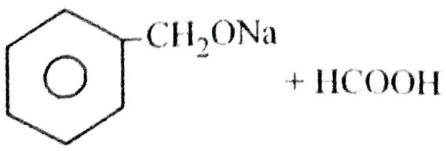
c) 

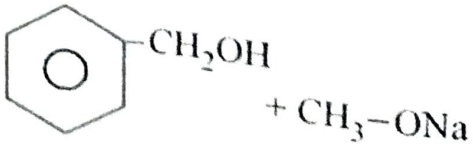
d) 

36)  + HCHO $\xrightarrow{\text{conc. NaOH}}$?

a) 

b) 

c) 

d) 

37) Benzaldehyde is treated with acetic anhydride is presence of sodium acetate to give ...

a) Benzoic acid
b) Cinnamic acid
c) Salicylic acid
d) Phthalic acid

38) When benzaldehyde is heated with conc. NaOH solution to give ... (O/N 2011)

a) Benzyl aclcohol & sodium benzoate
b) Benzoin
c) Cinnamic acid
d) Cinnamaldehyde

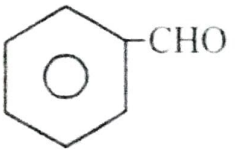
39) Which of the following is an redox reaction?

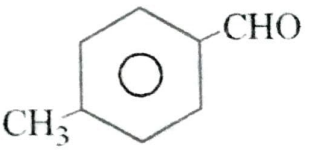
a) Aldol
b) Perkin
c) Benzoin
d) Cannizzaros

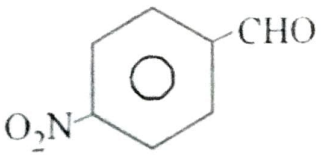
40) Cinnamic acid is obtained from benzaldehyde by action of acetic anhydride and sodium acetate is the ..... reaction (O/N 2011)

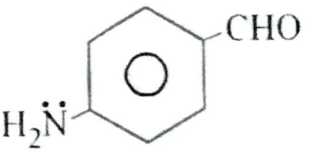
a) Aldol
b) Cannizzaros
c) Knovengel
d) Perkin

41) Which of the following is more reactive towards Perkin reaction?

a) 

b) 

c) 

d) 

42) Cinnamaldehyde undergo Perkin reaction to give ...

a) Cinnamic acid
b) 5-phenyl pent 2, 4-dienoic acid
c) Coumarin
d) o-hydroxy cinnamic acid

43) Acetophenone undergo Mannich reaction to give Mannich base is ..

a) α-amino ketone
b) β-aminoketone
c) β-hydroxy ketone
d) β-hydroxy acid

44) ..... is not used in Mannich reaction.

a) NH_3
b) CH_3NH_2
c) $(CH_3)_2NH$
d) $(CH_3)_3\ddot{N}$

45) Benzoin is .....

a) α-hydroxy ketone
b) β-hydroxy ketone
c) α, β unsaturated acid
d) β-hydroxy ester

46) In Benzoin condensation reaction, which of the following reagent is used? (M/A 2011)

a) Potassium cyanide
b) Potassium hydroxide
c) Acetic anhydride
d) $NaBH_4$

47) $C_6H_5-\overset{O}{\overset{\|}{C}}-CHO \xrightarrow{\text{conc. NaOH}} ?$

a) $C_6H_5-\overset{O}{\overset{\|}{C}}-COOH$

b) $C_6H_5-\overset{O}{\overset{\|}{C}}-CH_2OH$

c) $C_6H_5-\overset{OH}{\overset{|}{C}}H-COOH$

d) C_6H_5-COOH

48) KCN is used in Benzoin condensation due to ....

a) $CN^{\ominus}$ is good nucleophile

b) $CN^{\ominus}$ is good leaving group

c) $CN^{\ominus}$ stabilises carbanion

d) All of these

49) Which of the following undergo Aldol condensation. (O/N 2011)

a) Benzaldehyde

b) Benzoic acid

c) Benzophenone

d) Acetophenone

50) Cyanohydrin having ..... functional group.

a) Nitrile

b) Hydroxyl

c) both a & b

d) Amine

51) During nucleophilic addition towards aldehydes & ketones nucleophile is added on .....

a) carbonyl carbon

b) carbonyl oxygen

c) both a & b

d) carbanion

52) Ethanal + X → Hydroxy sodium sulphate of ethanal.
The reagent X is ....

a) Na_2SO_4

b) Na_2SO_3

c) $NaHSO_3$

d) $Na_2S_2O_3$

53) Cannizzaro reaction is ....

a) Redox reaction

b) Disproportionation reaction

c) Both a & b

d) Only reduction

54) Which of the following reaction do not show new C-C bond formation?

a) Cannizzaros reaction

b) Wurtz reaction

c) Aldol condensation

d) Gattermann reaction

55) The key step in Cannizzaros reaction is trasfer of ...

a) Proton

b) Hydride ion

c) Oxygen

d) Hydroxide

56) In cross Cannizzaros reaction, more reactive aldehyde undergoes.....

a) Oxidation
b) Reduction
c) Nitration
d) Amination

57) Benzaldehyde reacts with semicarbazide to yields.
a) Benzoic acid
b) Benzyl alcohol
c) Benzaldehyde semicarbazide
d) Benzaldehyde semicarbazone

58) Acetophenone reacts with methyl amine to give ...
a) Tollen's reagent
b) Schiff's base
c) Arrhenius base
d) Lewis base

59) In Perkin reaction, anhydride should posses at least ...
a) one α-hydrogen
b) two α-hydrogen
c) one β-hydrogen
d) two β-hydrogen

60) The reaction that proceeds through carbocation species is .....
a) Friedel-Crafts reaction
b) Aldol reaction
c) Perkin reaction
d) Claisen reaction

61) The reaction that proceeds through carbanion species is ....
a) Friedel-Crafts reaction
b) SN^1 reaction
c) Aldol reaction
d) Cannizzaros reaction

62) The reaction in which C–C–N bond is formed is ....
a) Mannich reaction
b) Perkin reaction
c) Aldol reaction
d) Cannizzaros reaction

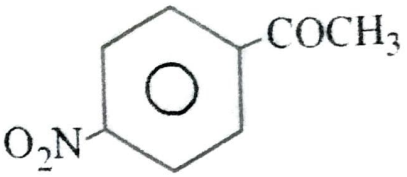
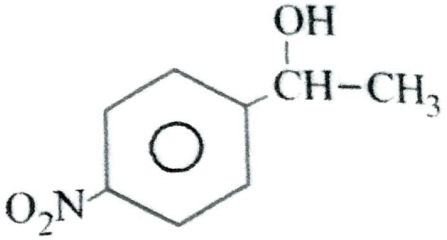
63) In the Cannizzaros reaction

$$HCHO + HCHO \xrightarrow{\text{conc. NaOH}} CH_3OH + HCOONa$$

the slowest step is ....
a) The attack of $OH^{\ominus}$ on carbonyl group
b) The transfer of hydride ion towords the carbonyl group
c) Deprotonation of - COOH group.
d) None of these.

64) In MPV reduction, reducing agent is ....
a) $NaBH_4$
b) $LiAlH_4$
c) $[(CH_3)_2\ CHO]_3Al$
d) $AlCl_3$

65) Acetophenone on MPV reduction gives (M/A 2011)
a) 1-phenyl ethanol
b) 2-phenyl ethanol
c) benzyl alcohol
d) None of these

66) Conversion of  into  takes place in presence of ....

a) $LiAlH_4$ b) $Al(O-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_3)_3$

c) NaOH d) $AlCl_3$

67) Order of reactivity of reducing agent is .....

a) LAH > Al-isopropoxide > $NaBH_4$

b) LAH> $NaBH_4$> Al-isopropoxide

c) Al-isopropoxide > $NaBH_4$ > LAH

d) $NaBH_4$ > LAH > Al-isopropoxide

68) In MPV reduction $>C=O$ group converts into .....

a) $-CH_2$ b) CH – OH

c) –COOH d) $>C<\begin{matrix}OH\\CN\end{matrix}$

69) Reverse of MPV reduction is an ....

a) Oppenauer oxidation b) Perkin reaction

c) Baeyer-Villiger oxidation d) Cannizzaros reaction

70) Ketones reacts with peracids to give ....

a) Anhydrides b) Esters

c) Alcohols d) Acids

71) Esters are obtained from ketones by action of peracid is ..... reaction.

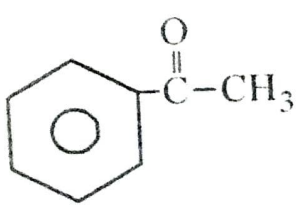
a) Perkin b) MPV

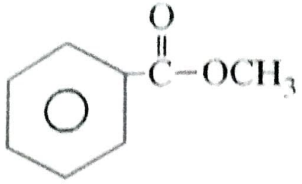
c) Baeyer-Villiger d) Benzoin

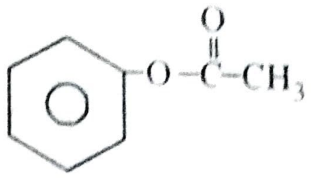
72) Baeyer-Villiger reaction is caused due to ....

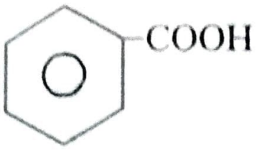
a) Electron rich carbon b) Electron deficient carbon

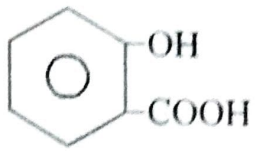
c) Electron rich oxygen d) Electron deficient oxygen

73)  $\xrightarrow{CF_3COOOH}$?

a) 

b) 

c) 

d) 

74) In Baeyer-Villiger reaction oxidising agent is ..... (O/N 2011)
a) Peracetic acid
b) Acetic acid
c) Formic acid
d) None of these

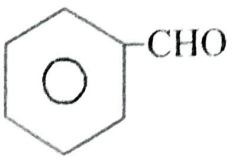
75) Reactivity order of peracids towards Baeyer-Villiger reaction in case of CH_3COOOH, CCl_3COOOH and CF_3COOOH
a) $CCl_3COOOH > CH_3COOOH > CF_3COOOH$
b) $CF_3COOOH > CCl_3COOOH > CH_3COOOH$
c) $CF_3COOOH > CH_3COOOH > CCl_3COOOH$
d) All are equally reactive

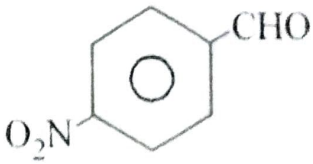
76) ..... reaction is results into formation of new C-O bond.
a) Aldol
b) Perkin
c) Benzoin
d) Baeyer-Villiger

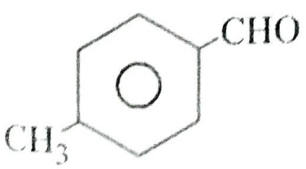
77) Benzaldehyde undergo Baeyer Villiger oxidation to give ....
a) Benzoic acid
b) Phenyl formate
c) Benzyl alcohol
d) None of these

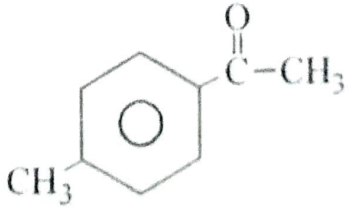
78) $CH_3CHO \xrightarrow{CF_3COOOH}$?
a) Acetic acid
b) Methyl formate
c) Methyl alcohol
d) Ethyl alcohol

79) Which of the following is more reactive towards benzoin reaction?

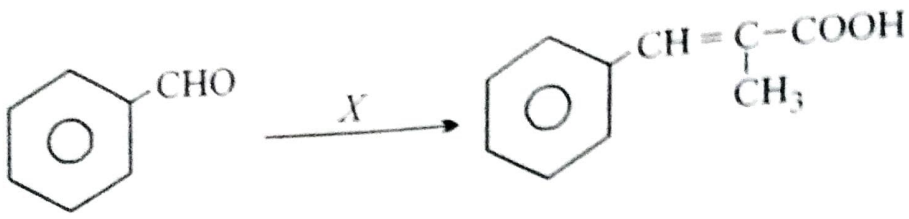
a) 

b) 

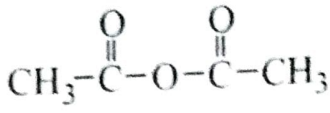
c) 

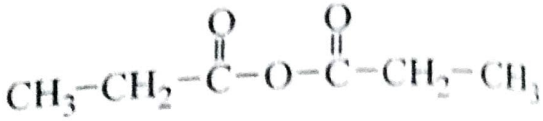
d) 

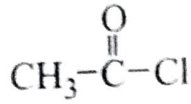
80) Product obtained in Mannich reaction is known as ....
a) Aldol
b) Benzoin
c) Mannich base
d) Mannich acid

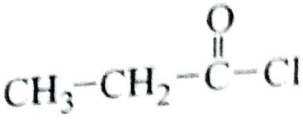
81) 

The *X* is .....

a) 

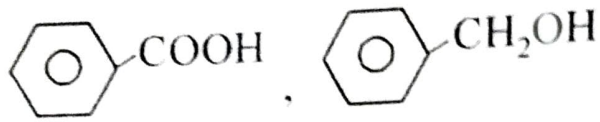
b) 

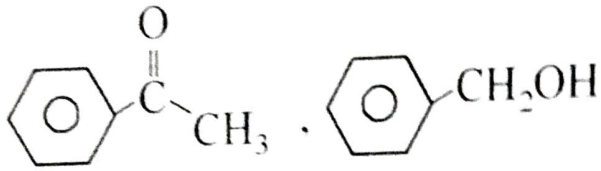
c) 

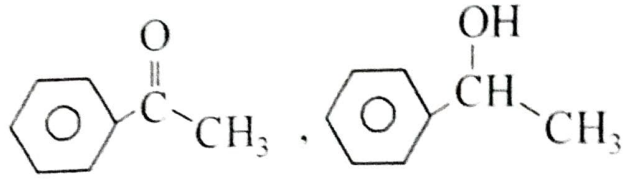
d) 

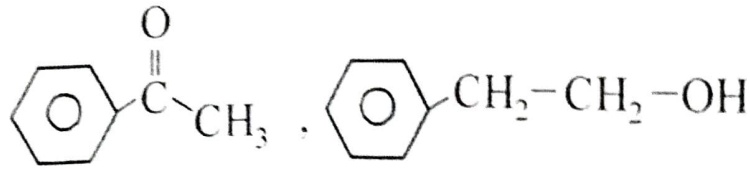
82) 

B, Identify A & B

a) 

b) 

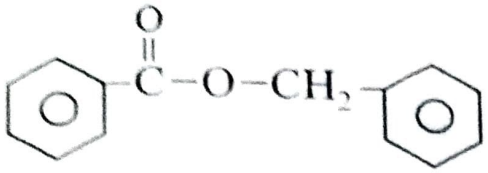
c) 

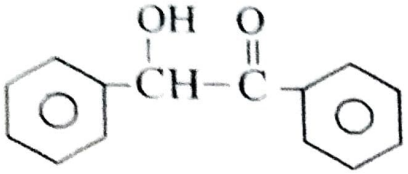
d) 

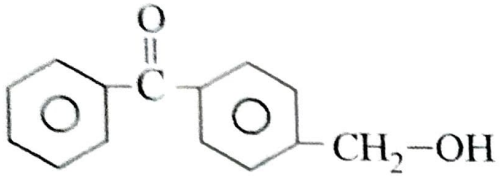
83) Formylation of benzene yields benzaldehyde which on reaction with acetic anhydride and sodium acetate gives cinnamic acid, Identify the reactions involved.

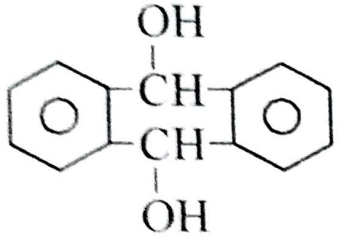
a) Gattermann & Gattermann koch
b) Gattermann & Friedel-Craft.
c) Gattermann & Perkin
d) Benzoin & Perkin

84) Compound A with molecular formula C_6H_6 undergo formylation to give B, which undergo condensation in presence of KCN to gives C with molecular formula $C_{14}H_{12}O_2$ Identify structure of compound C

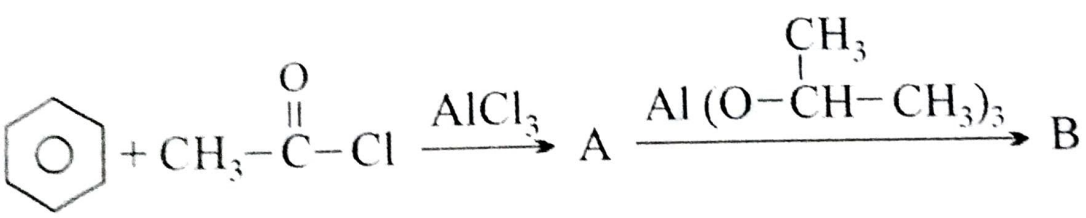
a) 

b) 

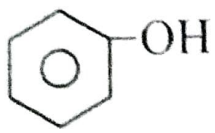
c) 

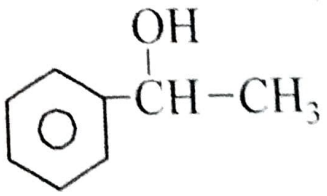
d) 

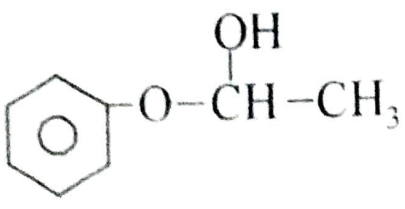
85. Phenyl acetate is obtained from benzene by....
    a) Aldol followed by Cannizarros reaction
    b) Aldol followed by Perkin reaction
    c) Benzoin followed by Perkin reaction
    d) Friedel-Craft reaction followed by Baeyer-Villiger reaction

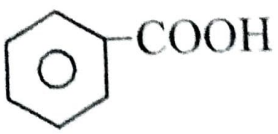
86. 

    Structure of B is ....

a) 

b) 

c) 

d) 

87. Phenyl formate is obtained by action of benzaldehyde with .....
    a) Alcohol
    b) Acid
    c) Peracid
    d) All of these

88. Mixture of benzaldehyde and formaldehyde on heating with NaOH to gives.

a) Benzyl alcohol & sodim formate
b) Methyl alcohol & sodium benzoate
c) Sodium benzoate & methyl benzoate
d) Benzyl alcohol & methyl alcohol

Answer Key

1)	**b**	2)	**a**	3)	**a**	4)	**d**	5)	**b**	6)	**a**
7)	**d**	8)	**a**	9)	**b**	10)	**c**	11)	**c**	12)	**a**
13)	**c**	14)	**b**	15)	**b**	16)	**d**	17)	**c**	18)	**c**
19)	**a**	20)	**a**	21)	**d**	22)	**c**	23)	**c**	24)	**b**
25)	**c**	26)	**c**	27)	**c**	28)	**d**	29)	**b**	30)	**c**
31)	**b**	32)	**c**	33)	**a**	34)	**d**	35)	**b**	36)	**a**
37)	**b**	38)	**a**	39)	**d**	40)	**d**	41)	**c**	42)	**b**
43)	**b**	44)	**d**	45)	**a**	46)	**a**	47)	**c**	48)	**d**
49)	**d**	50)	**c**	51)	**a**	52)	**c**	53)	**c**	54)	**a**
55)	**b**	56)	**a**	57)	**d**	58)	**b**	59)	**b**	60)	**a**
61)	**c**	62)	**a**	63)	**b**	64)	**c**	65)	**a**	66)	**b**
67)	**b**	68)	**b**	69)	**a**	70)	**b**	71)	**c**	72)	**d**
73)	**b**	74)	**a**	75)	**b**	76)	**d**	77)	**b**	78)	**a**
79)	**a**	80)	**c**	81)	**b**	82)	**c**	83)	**c**	84)	**b**
85)	**d**	86)	**b**	87)	**c**	88)	**a**				