NEET : CHAPTER WISE TEST-9

SUBJECT :- CHEMISTRY **DATE.....**

CLASS :- 12th **NAME.....**

CHAPTER :- ALDEHYDE & KETONE ,CARBOXYLIC ACID **SECTION.....**

(SECTION-A)

1. Which of the following forces best describes the boiling point of Aldehydes & ketones ?

(A) Hydrogen bond
(B) Vander wall force
(C) Dipole-dipole attraction
(D) None of these

2. Which is most difficult to oxidise-

(A) HCHO (B) CH_3CHO
(C) CH_3COCH_3 (D) CH_3CH_2CHO

3. Carbonyl compounds are best purified by:

(A) Steam distillation.
(B) Hydrolysis of sodium bisulphite adducts.
(C) Fractional crystallisation.
(D) Sublimation.

4. The product formed by the reaction of propyne with dil. H_2SO_4 in the presence of Hg^{2+} cannot be prepared by the following reaction-

(A) Dry distillation of calcium ethanoate
(B) By passing vapours of ethanoic acid over MnO at 300ºC
(C) By ozonolysis of 2- Butene
(D) By alkaline hydrolysis of isopropylidene chloride

5. When CH_3MgI reacts with CH_3CN and the product is hydrolysed, we get-

(A) Propanal (B) Acetone
(C) Formaldehyde (D) Acetaldehyde

6. $A \xrightarrow[H_2]{Pd/BaSO_4} \phi\text{–CHO} \xleftarrow[(ii)H_2O]{SnCl_2HCl} B$

A and B respectively are –

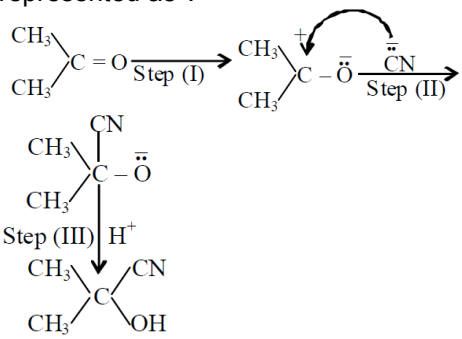
(A) Benzoyl chloride, benzonitrile
(B) Benzyl chloride, benzylnitrile
(C) Benzal chloride, benzonitrile
(D) Benzotrichloride, benzonitrile

7. Least reactive towards nucleophilic additon is

(A) $CH_2 = O$ (B) $CCl_3 - \underset{\underset{O}{\|}}{C} - C_2H_5$

(C) $CH_3 - \underset{\underset{O}{\|}}{C} - C_2H_5$ (D) $CH_3 - \underset{\underset{O}{\|}}{C} - H$

8. The reaction of acetone with CN– is represented as ?



In the above reaction, which is the fast step:

(A) Step (I)
(B) Step (II)
(C) Step (III)
(D) All steps take place with equal ease.

9. Arrange $[(CH_3)_3C]_2CO$ (I), $[(CH_3)_2CH]_2C=O$ (II), $(CH_3)_2C=O$ (III) and CH_3CHO (IV) in order of reactivity towards nucleophilic attack:

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

10. Formaldehyde reacts with 50% aqueous alkali to form:

(A) A mixture of methanol and sodium acetate.
(B) A mixture of ethanol and sodium formate.
(C) A mixture of methanol and sodium formate.
(D) A resinous mass

11. The correct statement regarding a carbonyl compound with a hydrogen atom on its alpha-carbon, is :

(A) a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this processes is known as keto-enol tautomerism .
(B) a carbonyl compound with a hydrogen atom on its alpha-carbon never equilibrates with its corresponding enol.
(C) a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known as aldehyde-ketone equilibration.
(D) a carbonyl compound with a hydrogen atom on its alpha-carbon rapidly equilibrates with its corresponding enol and this process is known a carbonylation.

12. Consider the following sequence of reactions

$CH_3C \equiv CH \xrightarrow[Hg^{2+}]{H_3O^+} A \xrightarrow[2.H_2O]{1.CH3MgI} B$

The final product (B) is -

(A) $CH_3C \equiv CCH_3$
(B) $CH_3COCH_2CH_3$
(C) $CH_3CH_2CHOHCH_3$
(D) $(CH_3)_3\ C - OH$

13. An alkene C_7H_{14} on reductive ozonolysis gives an aldehyde with formula C_3H_6O and a ketone. The ketone is -

(A) 2-Butanone (B) 2-Pentanone
(C) 3-Pentanone (D) Propanone

14. Identify the compounds A and B in the following reaction sequence

$(CH_3)_2C = O \xrightarrow[HCl]{NaCN} a \xrightarrow{H_3O^+} b$

(A) a = CH_3CO_2H, b = $(CH_3CO)_2O$
(B) a = $(CH_3)_2C(OH)CN$, b = $(CH_3)_2C(OH)CO_2H$
(C) a = CH_3CHO, b = CH_3CO_2H
(D) a = $(CH_3)_2C(OH)CN$, b = $(CH_3)_2C = O$

15. The increasing order of the rate of HCN addition to compounds a – d is -

(a) HCHO (b) CH_3COCH_3
(c) $PhCOCH_3$ (d) PhCOPh
(A) a < b < c < d (B) d < b < c < a
(C) d < c < b < a (D) d < a < c < b

16. Predict the product 'B' in the reaction sequence

$HC \equiv CH \xrightarrow[HgSO_4]{30\%H_2SO_4} A \xrightarrow{NaOH} B$

(A) CH_3COONa
(B) CH_3COOH
(C) CH_3CHO
(D) $CH_3CH(OH)CH_2CHO$

17. The reaction in which toluene is treated with with chromyl chloride in CCl_4 and the complex formed is subsequently decomposed with water is :

(A) Etard reaction
(B) Sandmeyer's reaction
(C) Schotten Baumann reaction
(D) Stephen's reaction

18. Aldol condensation between the following compounds followed by dehydration gives methyl vinyl ketone-

(A) HCHO and CH_3COCH_3
(B) HCHO and CH_3CHO
(C) Two molecules of CH_3CHO
(D) Two molecules of CH_3COCH_3

19. In Cannizzaro reaction-

(A) Aldehyde is converted into alcohol
(B) Alcohol is converted into aldehyde
(C) Primary amine is converted into isocyanide
(D) Acid is converted into amine

20. Match list I with list II and then select the correct answer from the codes given below the lists:

List I

(1) $RCOR' \xrightarrow[HCl]{Zn/Hg} RCH_2R$

(2) $>C=N-NH_2 \xrightarrow[C_2H_5ONa]{Heat} >CH_2 + N_2$

(3) $R-\underset{R}{\overset{}{C}}=O + \text{Aluminium isopropoxide}$

(4) $RCHO + A1(OC_2H_5)_3 \xrightarrow{Heat} \text{Ester}$

List II

(a) Meerwein-Ponndorf Verley reduction.
(b) Clemmensen reduction
(c) Tishchenko reaction
(d) Wolff-Kishner reduction

Codes :

	1	2	3	4
(A)	b	d	c	a
(B)	d	b	a	c
(C)	b	d	a	c
(D)	a	c	b	d

21. Match List I with list II and then select the correct answer from the codes given below the lists :

List I	**List II**
(1) C_6H_5CHO	(a) Mesitylene
(2) CH_3COCHO	(b) Paraldehyde
(3) CH_3COCH_3	(c) Iodoform reaction
(4) CH_3CHO	(d) Cannizzaro reaction

Codes

	1	2	3	4
(A)	d	c	b	a
(B)	d	b	c	a
(C)	a	c	b	d
(D)	d	c	a	b

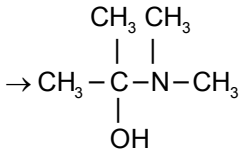
22. $CH_3-CHO \xrightarrow{\overset{\Theta}{OH}} CH_3CH(OH)CH_2CHO$

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

(A) $CH_2=\underset{|}{\overset{O^\Theta}{C}}-H$ (B) $:\overset{\Theta}{C}H_2-\overset{O}{\overset{||}{C}}-H$

(C) $CH_3-\underset{|}{\overset{O^\Theta}{C}}-CH_2-\overset{O}{\overset{||}{C}}-H$ (D) All above

23. How many aldols will be formed by CH_3CHO and $CH_3–CH_2–CHO$?
(A) 2 (B) 3 (C) 4 (D) 1

24. Which of the following is an example of aldol condensation ?
(A) $C_6H_5CHO + HCHO \xrightarrow[\text{Heat}]{\text{NaOH}} C_6H_5CH_2OH$
(B) $2CH_3COOC_2H_5 \xrightarrow[\text{2. } H_3O^+]{\text{1. } C_2H_5ONa} CH_3COCH_2COOC_2H_5$
(C) $CH_3COCH_3 + (CH_3)_2NH \rightarrow$ 
(D) $2CH_3COCH_3 \xrightarrow{Ba(OH)_2} CH_3C(OH)(CH_3)CH_2COCH_3$

25. $C_6H_6 \xrightarrow[\text{Dry } AlCl_3]{CH_3Cl} C_6H_5CH_3 \xrightarrow{CrO_2Cl_2}$
$C_6H_5CHO \xrightarrow[\text{NaOH}]{CH_3CHO} C_6H_5CH = CHCHO$
The reactions involved in the above reaction sequence are –
(A) Friedel Craft, Gattermann, Aldol condensation
(B) Friedel Craft, Etard, Aldol condensation
(C) Friedel Craft, Sommlet, Claisen condensation
(D) Friedel Craft, Sommlet, Aldol condensation

26. Acetone shows similarity with acetaldehyde in reacting to-
(A) Schiff's reagent
(B) Fehling solution
(C) Grignard reagent
(D) Tollen's reagent

27. Which statement is true about benzaldehyde ?
(A) It does not react with Tollen's reagent
(B) It does not react with Fehling's solution
(C) It does not react with HCN
(D) It does not react with $NaHSO_3$

28. Which of the following can be used to differentiate between ethanal and propanal?
(A) Ammonical $AgNO_3$
(B) Ammonical $AgNO_3$ in presence of tartrate ions
(C) I_2 in presence of base
(D) Ammonical $AgNO_3$ in presence of citrate ions

29. Fehling solution is made by mixing two separate solutions. One of which is a solution of copper sulphate only while the other contains:
(A) $NaHCO_3$ (B) Na_2CO_3
(C) $KNaC_4H_4O_6$ (D) $KHCO_3$

30. A carbonyl compound gives a positive iodoform test but does not reduce Tollen's reagent or Fehling's solution. It forms a cyanohydrin with HCN, which on hydrolysis gives a hydroxy acid with a methyl side chain. The compound is:
(A) Acetaldehyde.
(B) Propionaldehyde
(C) Acetone
(D) Crotonaldehyde.

31. If acetaldehyde is treated with Benedict or Fehling solution, the following change occurs in the system:
(A) $Ag^+ \rightarrow Ag°$ (B) $Cu^{+2} \rightarrow Cu°$
(C) $Cu^{+2} \rightarrow Cu^+$ (D) $Na^+ \rightarrow Na°$

32. An organic compound reduces Tollens reagent and Fehling's solution. It can be –
(A) CH_3CH_2CHO
(B) C_6H_5CHO
(C) $CH_3COCH_2CH_3$
(D) $(CH_3)_3CCOCH_3$

33. The general order of reactivity of carbonyl compounds for nucleophilic addition reactions is
(A) $H_2C = O > RCHO > ArCHO > R_2C = O > Ar_2C = O$
(B) $ArCHO > Ar_2C = O > RCHO > R_2C = O > H_2C = O$
(C) $Ar_2C = O > R_2C = O > ArCHO > RCHO > H_2C = O$
(D) $H_2C=O > R_2C=O > Ar_2C=O > RCHO > ArCHO$

34. $C_6H_5COCl \xrightarrow[H_2]{\text{Pd-BaSO}_4}$ Intermediate $\xrightarrow{\text{Oxidation}}$ Intermediate $\xrightarrow[\text{Dry distillation}]{\text{Ca-Salt}}$ A
Compound (A) in above reaction sequence is –
(A) Benzophenone (B) Benzaldehyde
(C) Acetophenone (D) Benzoquinone

35. Benzaldehyde condenses with acetic anhydride to give cinnamic acid in presence of –
(A) Sodium acetate
(B) Sodium chloride
(C) Sodium benzoate
(D) Sodium metal

(SECTION-B)

36. $C_6H_5CHO \xrightarrow{Cl_2} A + HCl$

The product A when reacts with the following compounds the reaction is known as Schotten Baumann reaction –

(A) $C_6H_5NH_2$ (B) $C_6H_5CH_2OH$

(C) C_6H_5OH (D) All of these

37. What are the products formed when a mixture of benzaldehyde and formaldehyde is heated with conc. alkali –

(A) Benzyl alcohol and formic acid

(B) Only benzyl alcohol

(C) Methyl alcohol and benzoic acid

(D) Only methyl alcohol

38. Benzaldehyde $\xrightarrow[|]{CH_3COONa}$ cinnamic acid

'I' in the above reaction is obtained by –

(A) $CH_3COOH + PCl_5$

(B) $CH_3CH_2OH + K_2Cr_2O_7/H_2SO_4$

(C) $(CH_3CO)_2O + CH_3COONa$

(D) $CH_3CONH_2 + P_2O_5$

39. Decarboxylation of which of the following acid gives benzoic acid –

(A) Phthalic acid

(B)Anthranilic acid

(C) Phenylacetic acid

(D) Malic acid

40. Acetic acid is obtained when -

(A) Methyl alcohol is oxidised with potassium permanganate

(B) Formaldehyde is oxidised with potassium dichromate and sulphuric acid

(C) Acetonitrile is hydrolysed with a dilute mineral acid

(D) Glycerol is heated with sulphuric acid

41. Carboxylic acid group can be detected by -

(A) Sodium bisulphite test

(B) Fehling's solution test

(C) Tollen's reagent

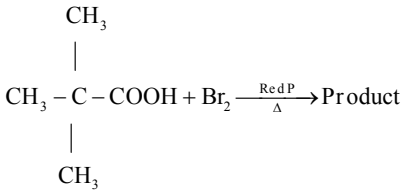
(D) With $NaHCO_3$

42. The Hell-Volhard Zelinsky reaction is used for preparing a/an -

(A) β -Haloacid (B) γ -Haloacid

(C) Acid halide (D) α -Haloacid

43.



The product of the above reaction is -

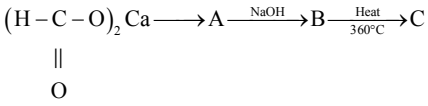
(A) β -Dibromo acid

(B) β , β '- Dibromo acid

(C) β , β ', β "-Tribromo acid

(D) No reaction takes place

44. The product A, B and C in the reaction sequence



are -

(A) HCHO, HCOONa, CH_3OH

(B) HCHO, Na_2CO_3, $NaHCO_3$

(C) HCHO, HCOONa, $(COONa)_2$

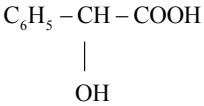
(D) HCHO, HCOONa, Na_2CO_3

45. Which of the following carboxylic acids undergoes decarboxylation easily?

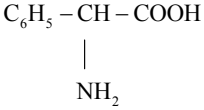
(A) $C_6H_5 - CO - CH_2 - COOH$

(B) $C_6H_5 - CO - COOH$

(C)

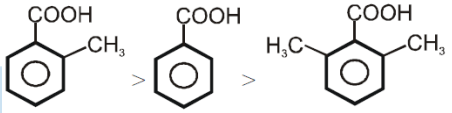


(D)

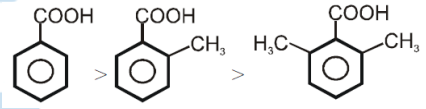


46. The order of reactivity of benzoic acid, 2,6-Dimethyl benzoic acid , o-toluic acid for esterification by ethyl alcohol is–

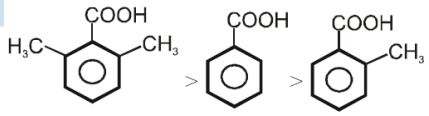
(A)



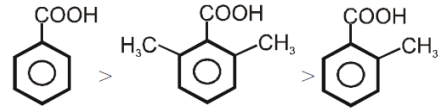
(B)



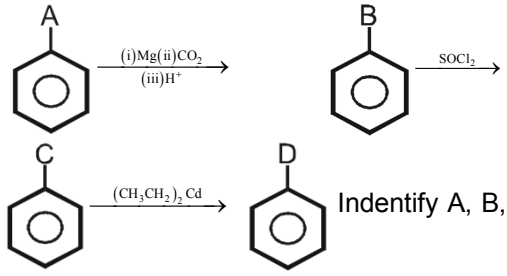
(C)



(D)



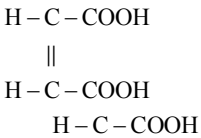
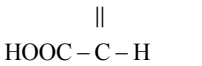
47. Consider the following sequence of reactions-



Indentify A, B, C and D :

	A	B	C	D
(A)	–F	–COOH	$-COCH_3$	$-OCH_2CH_2CH_3$
(B)	–CHO	–COOH	–COCl	$-COCH_2CH_3$
(C)	–Br	–COOH	–COCl	$-COCH_2CH_3$
(D)	–Br	–COOH	–COCl	–CHO

48. The rate of esterfication of HCOOH
(I) CH_3COOH
(II) $(CH_3)_2CHCOOH$
(III) $(CH_3)_3CCOOH$
(IV) with ethanol follows in the order -
(A) IV > III > II > I (B) I > II > III > IV
(C) II > I > IV > III (D) III > IV > I > II

49. Which of the following organic acid decolourises bromine water as well as forms anhydride on heating with 160° C?
(A) HOOC – COOH
(B) HOOC – CH_2 – COOH
(C)

(D)


50. A compound undergoes the following sequence of reactions :

$$C_3H_5N \xrightarrow{\text{Hydrolysis}} \underset{(a)}{C_3H_6O_2} \xrightarrow{Cl_2/P} \underset{(b)}{C_3H_5O_2Cl} \xrightarrow{NH_3} \underset{(c)}{C_3H_7NO_2}$$

The compound C is -
(A) 1-Nitropropane
(B) 2-Nitropropane
(C) 2-Aminopropanoic acid
(D) 2-Hydroxypropanamide