- **1.** Acetaldehyde on warming with Fehling's solution gives a red precipitate of:-
 - (1) Elemental copper
 - (2) Cuprous oxide
 - (3) Cupric oxide
 - (4) Mixture of all of the above
- 2. Acetone does not form :-
 - (1) A phenylhydrazone with phenylhydrazine
 - (2) A sodium bisulphite adduct with sodium bisulphite
 - (3) A silver mirror with Tollen's reagent
 - (4) An oxime with hydroxylamine
- 3. CH₃CHO and CH₃COCH₃ can not be distinguished by :-
 - (1) Fehling solution
 - (2) Grignard reagent
 - (3) Schiff's reagent
 - (4) Tollen's reagent
- **4.** Acetone is obtained by the hydrolysis of the addition product of methyl magnesium iodide and :-
 - (1) HCHO
- (2) CH₃CHO
- (3) CH₃COCH₃
- (4) CH₃-C≡N
- 5. Ph-C-CH₃ + aq. KOH \rightarrow A $\xrightarrow{\text{KCN}}$ B ?
 - (1) 50% d + 50% ℓ
- (2) 80% d + 20% ℓ
- (3) Meso compound
- (4) optically active
- 6. C-C can be obtained by :-
 - (1) \bigcirc C-Cl + (Ph)₂Cc
 - $(2) \bigcirc C-CI + \bigcirc C$
 - (3) O + CO + ZnCl₂ + HCN
 - (4) None of the above

- **7.** Which does not react with $NaHSO_3$.
 - 1) Ph-C-H
 - 2) CH₃-O-(0)-C-H
 - (3) CH₃-O-CH₂-C-Ph
 - (4) CHO CH₃
- 8. Ketones can be prepared by :-
 - (1) Rosenmund reduction
 - (2) Etard reaction
 - (3) Cannizzaro reaction
 - (4) Friedel-Craft reaction
- 9. Carbonyl compounds are best purified by :-
 - (1) Steam distillation
 - (2) Hydrolysis of sodium bisulphite adducts
 - (3) Fractional crytallisation
 - (4) Sublimation
- 10. Carbonyl compounds readily undergo :-
 - (1) Nucleophilic substitutions
 - (2) Electrophilic addition reactions
 - (3) Nucleophilic addition reactions
 - (4) Free radical substitution reactions
- **11.** CH₃-C-CH₃ and CH₃-C-H are readily distinguished by their reaction with :-
 - (1) Iodine and alkali
 - (2) 2,4-dinitrophenylhydrazine
 - (3) Tollen's reagent
 - (4) All the above
- **12.** Which is the most suitable reagent for the following conversion
- $\bigcirc \qquad \bigcirc \\ \mathrm{CH_3-CH=CH-CH_2-C-CH_3} \mathbf{\rightarrow} \mathrm{CH_3-CH=CH-CH_2-C-OH}$
 - $(1) \xrightarrow{(i) \text{Tollen's reagent}}$
- (2) (i)Benzoyl peroxide (ii)H[⊕]
- (3) $\xrightarrow{\text{(i)}I_2 \text{ and NaOH}}$
- $(4) \xrightarrow{\text{KMnO}_4/\text{H}^{\oplus}, \Delta}$

- 13. Formaldehyde reacts with conc. alkali to form :-
 - (1) A resinous mass
 - (2) Formic acid
 - (3) A mixture of methanol and sodium formate
 - (4) Methanol
- **14.** Which of the following compounds does not give aldol condensation:-
 - (1) CH₃CHO
- (2) CH₃CH₂CHO
- (3) HCHO
- (4) CH₃CH₂CH₂CHO
- **15.** Cannizzaro reaction is given by :-
 - (1) Aldehydes containing α -hydrogen atoms
 - (2) Aldehydes as well as ketones containing α -hydrogen atoms
 - (3) Aldehydes not containing α -hydrogen atoms
 - (4) Aldehydes containing β-hydrogen atoms
- **16.** Which of the following can be converted to CH₃-CH=CH-CHO:-
 - (1) Acetone
- (2) Acetaldehyde
- (3) Propanaldehyde
- (4) Formaldehyde
- **17.** The product of reaction with primary amine and aldehyde is -
 - (1) R-C-OH
- (2) R-ONO
- (3) R'-CH=N-R
- (4) R-NO₂
- **18.** Brady's reagent is
 - (1) [Cu(NH₃)₄]SO₄
- (2) KMnO₄/NaIO₄

(3)
$$O_2N$$
 O_2 O_2N O_2N

- **19.** A compound with molecular formula C_3H_6O , not gives silver mirror with Tollen's reagent but forms oxime with hydroxyl amine. Compound will be -
 - (1) $CH_2 = CH CH_2 OH$
 - (2) CH₃CH₉CHO
 - (3) $CH_2 = CH O CH_3$
 - (4) CH₃COCH₃
- 20. Aldehyde and ketone are distinguished by reagent
 - (1) Fehling solution
- (2) H_2SO_4
- (3) NaHSO₃
- (4) NH_3

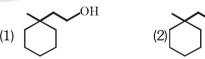
- **21.** Carbonyl group is converted into methylene group by -
 - (1) Acidic reduction
 - (2) Raney Ni
 - (3) Basic hydrolysis
 - (4) Normal Hydrogenation
- **22.** When acetaldol is treated with excess of acid then unsaturated product will be :-
 - (1) Alcohol
- (2) Aldehyde

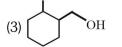
(3) Acid

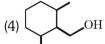
- (4) Alkyl halide
- **23.** The reagent used for the separation of acetaldehyde from acetophenone is -
 - (1) NaHSO₃
- (2) $C_6H_5NHNH_2$
- (3) NH₂OH
- (4) NaOH + I_2
- **24.** The most suitable reagent for the conversion of $RCH_2OH \longrightarrow RCHO$
 - $(1) \text{ KMnO}_4$
 - (2) K₂Cr₂O₇
 - (3) CrO₃/H₂SO₄
 - (4) PCC (Pyridinium chloro chromate)
- **25.** The major organic product formed from the following reaction is:-

$$\begin{array}{c} O \\ \hline (i) CH_3NH_2 \\ \hline (ii) LiAlH_4 (iii)H_2O \end{array}$$

- (1) NHCH
- (2) NHCH
- (3) \searrow NHCH OH
- $(4) > \stackrel{\text{NHCH}}{\smile}_{\text{OCH}_3}$
- 26. $(H_3MgBr \xrightarrow{H^{\oplus}/H_2O} P \xrightarrow{HBr} Q \xrightarrow{Mg} R)$
 - $\xrightarrow{\text{HCHO}} S$, S is:







27. $H-C-CH_2CH_2CH_2CH_2-C-H \xrightarrow{\Theta}$ Production (A) is :-

- (2) CH=C
- (3) CH₂-CH₂CH₂CH₂CH₂-COOH OH
- (4) CH₂-CH₂CH₂CH₂CH₂-CH₂ OH OH
- **28.** Which of the following reaction will not give ketone?
 - (1) $R MgX + \frac{R COCl}{R}$
 - $(2) R CN + R MgX \longrightarrow H_3O^+$
 - (3) $\langle \rangle$ +RCOCI anhy.AlCl₃
 - $(4) \quad \bigcirc \longrightarrow CH_3 + CrO_2Cl_2 \xrightarrow{CS_2} \xrightarrow{H_3O^+}$
- **29.** Select the incorrect option :

Conversion

Reagent

- (1) Hexan-1-ol hexanal $C_5H_5NH^+CrO_3Cl^-$
- (2) Ethanenitrile → Ethanal DIBAL-H
- (3) p-fluorotoluene, \longrightarrow $K_2Cr_2O_7$, H^+ p-fluorobenzaldehyde
- (4) But-2-ene \longrightarrow Ethanal O_3, H_2O -Zn dust
- **30.** True statement about acetone is
 - (1) α H of acetone is acidic due to strong electron withdrawing carbonyl group
 - (2) α–H of acetone is acidic due to resonance stabilisation of conjugate base
 - (3) It gives β -Hydroxy ketone with dilute alkali
 - (4) All

31. $CH_3CH_3 \xrightarrow{Cl_2} (A) \xrightarrow{aq.KOH} (B) \xrightarrow{PCC} (C)$

$$(D) \leftarrow OH^{\ominus}$$

The product D is:-

- (1) $CH_2 = CH_2$
- (2) CH₃-CH-CH₂-CHO OH
- (3) CH₃-C-CH₃
- (4) CH₂-CH=CH-CHO
- **32.** Select the correct statement for C=O and C=C bond.
 - (1) Carbon-Oxygen double bond is polar but carboncarbon double bond is non-polar
 - (2) Carbon–Oxygen bond length is 123 pm than that of carbon-carbon bond length is 134 pm
 - (3) carbonyl compounds undergo nucleophilic addition reaction but compounds containing ethylenic double bonds undergo electrophilic addition reaction
 - (4) All of these
- **33.** Select the structure of chromium complex formed by the reaction of toluene with chromylchloride followed by hydrolysis to give benzaldehyde and also the name of the reaction.

(1)
$$CH(OCrCl_2)_2$$
 and Etard reaction

- **34.** The methanal, ethanal and propanone are miscible with water because they form
 - (1) Vander waal's forces with water
 - (2) H-bond with water
 - (3) dipole-dipole bond with water
 - (4) ion-dipole bond with water

- 35. The correct increasing order of carbonyl compounds towards nucleophilic addition reaction.
 - (1) Butanone < Propanone < Propanal < Ethanal
 - (2) Butanone < Propanal < Propanone < Ethanal
 - (3) Butanone < Ethanal < Propanone < Propanal
 - (4) Butanone < Ethanal < Propanal < Propanone
- 36. Which of the following carbonyl group give the positive fehling test?
 - (1) Aliphatic aldehydes (2) Aromatic aldehydes
 - (3) Ketones (4) Both (1) and (2)
- **37**. When propanoic acid is treated with aqueous sodium bicarbonate, CO₂ is liberated. The C of CO₂ comes from :-
 - (1) methyl group
 - (2) carboxylic acid group
 - (3) methylene group
 - (4) bicarbonate
- In a set of reactions acetic acid yielded a product D 38.

$$CH_3COOH \xrightarrow{SOCl_2} A \xrightarrow{Benzene} B$$
Anhy. AlCl₃

$$\xrightarrow{\text{NaCN}} C \xrightarrow{\text{H}_3O^{\oplus}} D$$

The structure of D would be -

39. The compounds A and B in the reaction sequence

$$B \stackrel{Phenol}{\longleftarrow} CH_3COCl \stackrel{CH_3COON_a}{\longrightarrow} A$$

are given by the set respectively:

- (1) CH₃CO-O-COCH₃, C₆H₅CH₂OH
- (2) CH₂CO-O-COCH₂, C₆H₅OCOCH₂
- (3) CH₃COCH₃, C₆H₅OCOCH₃

 CH_2 - $COOH \xrightarrow{Red P/Cl_2} A \xrightarrow{Alc.} B$ 40. structure of B is :-

- (1) CH₂=CH-COOH (2) CH₃-CH-COOH
- (3) CH₂-CH₂-COOH
- (4) CH₃-CH₂-C-Cl

Which is most reactive towards hydrolysis. 41.

- 42. Which of the following reagents may be used to distinguish between phenol and benzoic acid?
 - (1) Victor-Mayer test
- (2) Neutral FeCl₃
- (3) Aqueous NaOH
- (4) Tollen's reagent
- 43. Acyl chlorides undergo:-
 - (1) Nucleophilic addition reactions
 - (2) Nucleophilic substitution reactions
 - (3) Electrophilic substitution reactions
 - (4) Electrophilic addition reactions

- **44.** The reaction of ethanol on acetic anhydride is an example of :-
 - (1) Nucleophilic addition
 - (2) Nucleophilic substitution
 - (3) Electrophilic addition
 - (4) Free radical substitution
- **45.** The reduction of acetamide gives :-
 - (1) CH₃CH₂NH₂
 - (2) (CH₃)₂CHNH₂
 - (3) (CH₃)₃CNH₂
 - (4) (CH₃CH₂)₂NH
- **46.** Which is used in preparation of aldehyde by rosenmund reduction
 - (1) Ester
- (2) Acid
- (3) Acid halide
- (4) Alcohol
- **47.** CH_3 - $C-NH_2 \xrightarrow{P_2O_5} ?$
 - (1) CH₂COOH
- (2) CH₂-CN
- (3) CH₃-CH₃
- (4) CH₃-CHO
- 48. $O \xrightarrow{CHO} NaOH \rightarrow A \xrightarrow{H^{\oplus}} ?$
 - (1) CH₂OH COOH
- (2)
- (3)
- (4)

49. Arrange the following for reactivity towards nucleophilic addition reaction in decreasing order

I.
$$_{H}^{H}>C=0$$

II.
$$\overset{CH_3}{\longrightarrow} C = 0$$

III.
$$CH_3$$
 $C = O$

- (1) I > II > III
- (2) II > I > III
- (3) III > II > I
- (4) None of these
- **50.** Arrange the following for reactivity towards nucleophilic addition reaction in decreasing order
 - I. CICH₂CHO
- II. NO₂CH₂CHO
- III. CH₃CHO
- IV. CH₃CH₂CHO
- (1) I > II > III > IV
- (2) II > I > III > IV
- (3) IV > III > II > I
- (4) IV > I > II > III
- **51.** Arrange the following for reactivity towards nucleophilic addition reaction in decreasing order
 - I. CH₃CHO
- II. CICH, CHO
- III. HCCl₂CHO
- IV. CCl₃CHO
- (1) I > II > III > IV
- (2) II > I > III > IV
- (3) IV > III > II > I
- (4) IV > I > II > III
- **52.** Arrange the following for reactivity towards nucleophilic addition reaction in decreasing order

I.
$$CH_3$$
 $C=0$

II.
$$\begin{array}{c} CH_3CH_2 \\ CH_3 \end{array} > C = 0$$

III.
$$(CH_3)_2CH$$
 $C = C$

IV.
$$CCl_3$$
 $C=O$

- (1) I > II > III > IV
- (2) II > I > III > IV
- (3) IV > III > II > I
- (4) IV > I > II > III

ANSWER KEY

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