# ANSWERS

## I. Multiple Choice Questions (Type-I)

| | | | | | |
|---|---|---|---|---|---|
| 1. (ii) | 2. (i) | 3. (iii) | 4. (ii) | 5. (iii) | 6. (iv) |
| 7. (ii) | 8. (iv) | 9. (ii) | 10. (iii) | 11. (ii) | 12. (i) |

## II. Multiple Choice Questions (Type-II)

13. (ii), (iv); [**Hint :** in compounds (ii) and (iv) α-hydrogen is absent.]

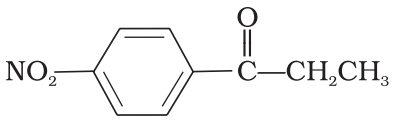
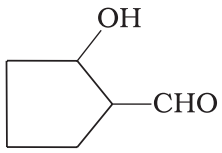
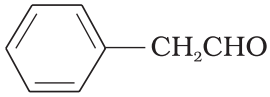
14. (ii), (iii) 15. (ii), (iv) 16. (i), (iii) 17. (i), (ii) 18. (i), (ii)

## III. Short Answer Type

19. [**Hint :** Butan-1-ol has higher boiling point due to intermolecular hydrogen bonding.]

20. [**Hint :** Iodoform test]

21. (i) 3-Phenylprop-2-enal (ii) Cyclohexanecarbaldehyde
(iii) 3-oxopentanal (iv) But -2-enal

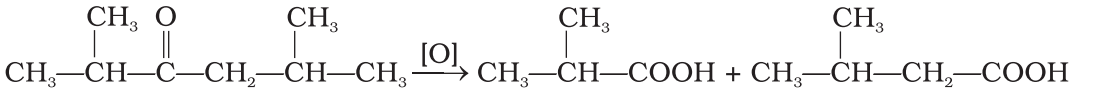
22. (i) 
(ii) 
(iii) 

23. (i) Ethane-1, 2 – dial (ii) Benzene-1, 4-dicarbaldehyde
(iii) 3-Bromobenzaldehyde

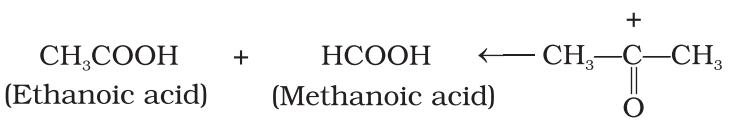
24. See NCERT textbook for Class XII

25. $C_6H_5\overset{\oplus}{C}O$ benzoyliumcation or $C_6H_5-\overset{\overset{O}{\|}}{\underset{\delta+}{C}}.....Cl.....\overset{\delta-}{AlCl_3}$. Friedel Craft's acylation reaction.

26.



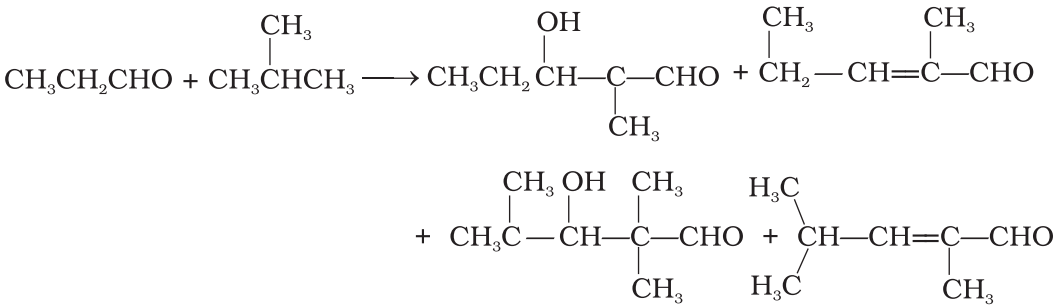
(2-Methylpropanoic acid) (3-Methylbutanoic acid)



(Ethanoic acid) (Methanoic acid) (Propan-2-one)

27. **Hint :** $FCH_2COOH > ClCH_2COOH > C_6H_5CH_2COOH > CH_3COOH > CH_3CH_2OH$

28. It is cross Aldol condensation



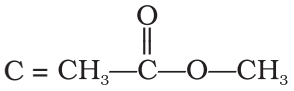
29. 'A' is a carboxylic acid, 'B' is an alcohol and 'C' is an ester.

30. $NO_2CH_2COOH > FCH_2COOH > C_6H_5COOH$

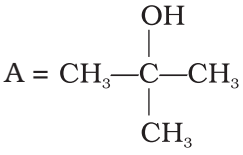
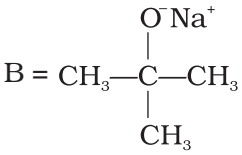
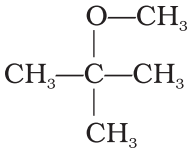
[**Hint :** electron withdrawing effect.]

31. [**Hint :** Carbon atom in carbonyl compounds acquires slight positive charge and is attacked by nucleophile.]

32. [**Hint :** Due to resonance as shown below the partial positive charge on carbonyl carbon atom is reduced.]

33. A = $CH_3MgBr$ B = $CH_3COOH$ C = 

34. **Hint :** Compare the stability of anion formed after the loss of $H^+$ ion. More stable the anion formed, more easy will be the dissociation of O—H bond, stronger will be the acids.

35. **Hint :** A =  B =  C = 

## *IV. Matching Type*

38. (i) — (d), (ii) — (e), (iii) — (a), (iv) — (b), (v) — (c)

39. (i) — (b), (ii) — (e), (iii) — (d), (iv) — (a), (v) — (c)

40. (i) — (c), (ii) — (d), (iii) — (a), (iv) — (b)

41. (i) — (e), (ii) — (d), (iii) — (a), (iv) — (b), (v) — (f), (vi) — (c)

## V. Assertion and Reason Type

42. (i) 43. (v) 44. (iv) 45. (iii) 46. (iv)

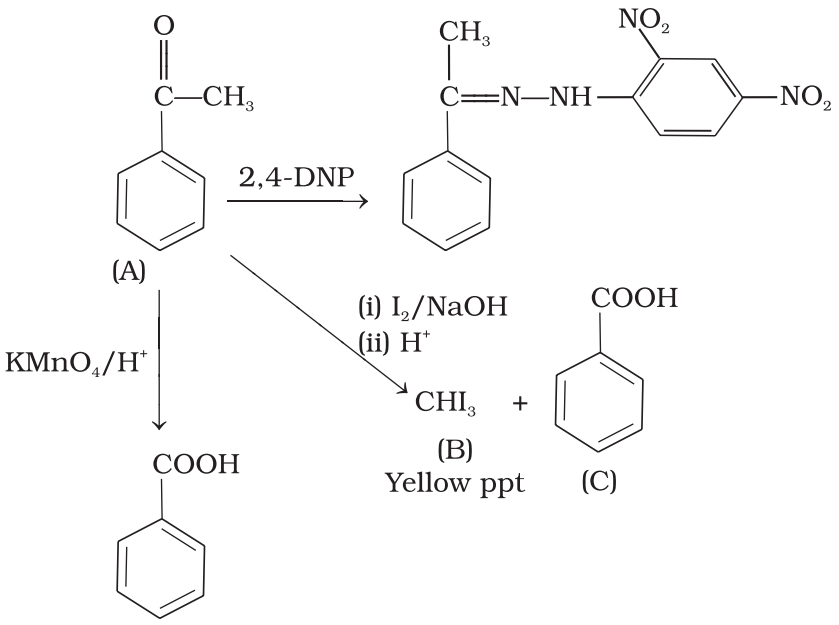
## VI. Long Answer Type

47. $CH_3—CH=\underset{\displaystyle CH_3}{\overset{|}{C}}—CH_3 \xrightarrow[(ii)\ Zn/H_2O]{(i)\ O_3} H_3C—CHO + O=\underset{\displaystyle CH_3}{\overset{|}{C}}—CH_3$

2-Methylbut-2-ene (A) (B) (C)

Other isomers of 'A' will not give products corresponding to the given test.

48. **Hint :**




49. $CH_3CH_2CHO$ $CH_3COCH_3$

(I) (II)

- Compound I will react faster with HCN due to less steric hinderance and electronic reasons than II.
- No, It is a reversible reaction. Hence equilibrium is established.
- Addition of acid inhibits the reaction because the formation of $^-CN$ ions is prevented.

50. **Hint :** Liquid 'A'