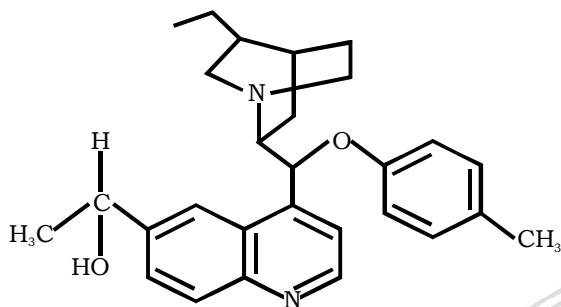


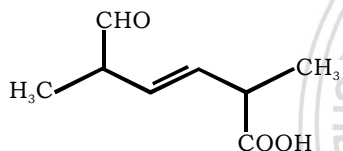
Instructor: ER. S. K. SINGH (B. Tech, M.Tech) M.N.N.I.T. Alld.

1. The number of chiral carbons present in the molecule given below is



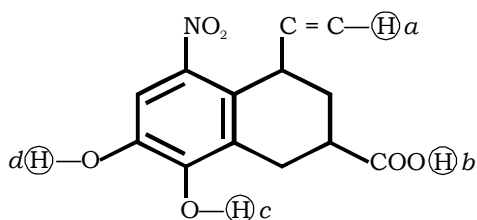
[JEE Main 2020, 2 September Shift - I]

2. The IUPAC name for the following compound is



[JEE Main 2020, 2 September Shift - I]

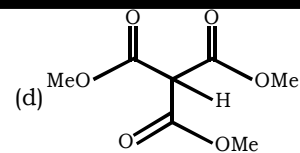
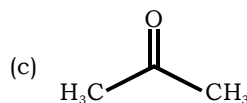
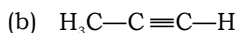
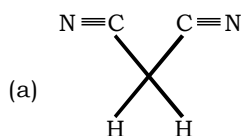
- (a) 6-formyl-2-methyl-hex-3-enoic acid
 (b) 2, 5-dimethyl-6-oxo-hex-3-enoic acid
 (c) 2, 5-dimethyl-6-carboxy-hex-3-enal
 (d) 2, 5-dimethyl-5-carboxy-hex-3-enal
3. Arrange the following labelled hydrogens in decreasing order of acidity



[JEE Main 2020, 2 September Shift - II]

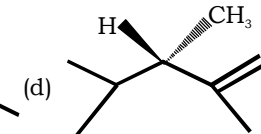
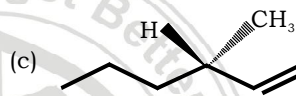
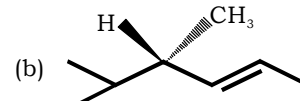
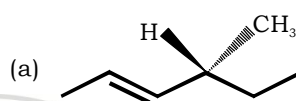
- (a) $b > a > c > d$ (b) $c > b > d > a$
 (c) $b > c > d > a$ (d) $c > b > a > d$
4. Which one of the following compounds possesses the most acidic hydrogen?

[JEE Main 2020, 3 September Shift - I]

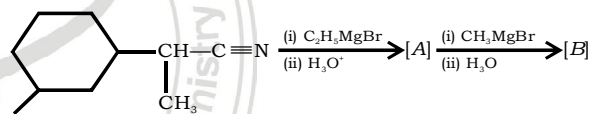


5. Which of the following compounds produces an optically inactive compound on hydrogenation?

[JEE Main 2020, 3 September Shift - I]

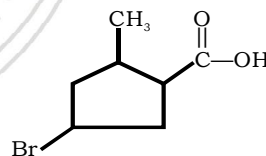


6. The number of chiral centres present in [B] is



[JEE Main 2020, 4 September Shift - I]

7. The IUPAC name of the following compound is



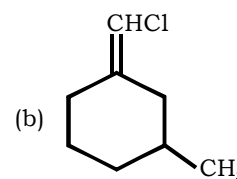
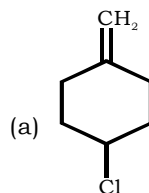
[JEE Main 2020, 4 September Shift - I]

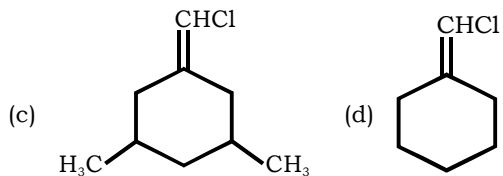
- (a) 3-bromo-5-methylcyclopentane carboxylic acid
 (b) 3-bromo-5-methylcyclopentanoic acid
 (c) 5-bromo-3-methylcyclopentanoic acid
 (d) 4-bromo-2-methylcyclopentane carboxylic acid
8. The number of chiral centres present in threonine is

[JEE Main 2020, 4 September Shift - II]

9. Among the following compounds, geometrical isomerism is exhibited by

[JEE Main 2020, 5 September Shift - II]



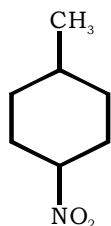


10. Which of the following compounds shows geometrical isomerism?

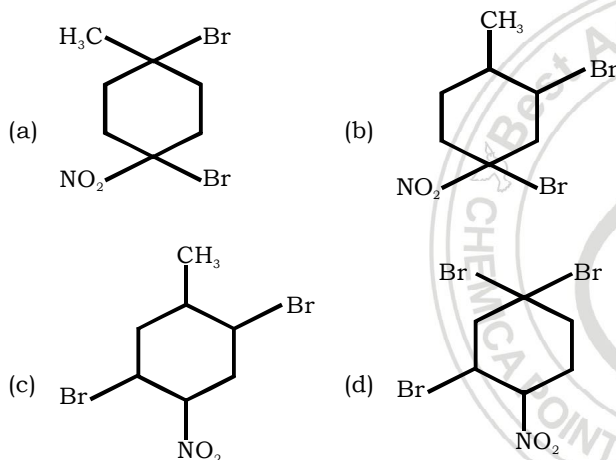
[JEE Main 2020, 6 September Shift - I]

- (a) 2-methylpent-2-ene (b) 4-methylpent-2-ene
(c) 4-methylpent-1-ene (d) 2-methylpent-1-ene

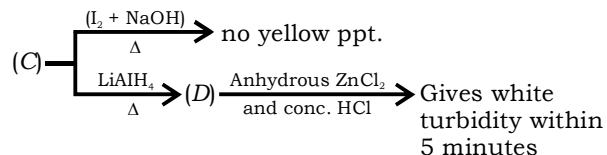
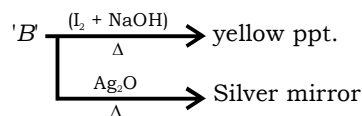
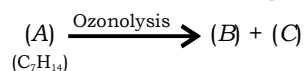
11. The major product of the following reaction is



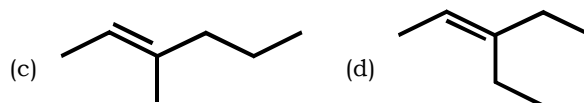
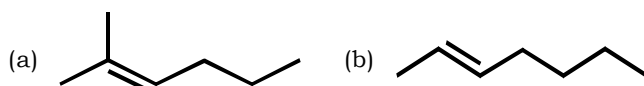
[JEE Main 2020, 6 September Shift - I]



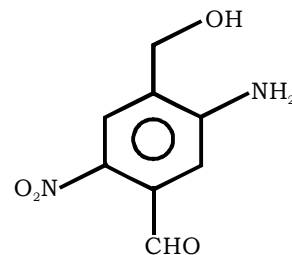
12. Consider the following reactions:



[JEE Main 2020, 6 September Shift - I]



13. The IUPAC name of the following compounds is



[JEE Main 2020, 6 September Shift - I]

- (a) 2-nitro-4-hydroxymethyl-5-amino benzaldehyde
(b) 3-amino-4-hydroxymethyl-1-5-nitrobenzaldehyde
(c) 5-amino-4-hydroxymethyl 1-2-nitrobenzaldehyde
(d) 4-amino-2-formyl-5-hydroxymethylnitrobenzene

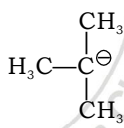
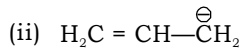
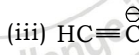
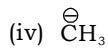

14. A chromatography column, packed with silica gel as stationary phase, was used to separate a mixture of compounds consisting of (A) benzanilide (B) aniline and (C) acetophenone. When the column is eluted with a mixture of solvents, hexane : ethyl acetate (20 : 80), the sequence of obtained compounds is

[JEE Main 2020, 7 January Shift - II]

- (a) (C), (A) and (B) (b) (A), (B) and (C)
(c) (B), (C) and (A) (d) (B), (A) and (C)

15. The increasing order of basicity for the following intermediates is (from weak to strong)

[JEE Main 2020, 8 January Shift - II]

- (i)  (ii) 
- (iii)  (iv) 
- (v) 

(a) (v) < (iii) < (ii) < (iv) < (i)

(b) (iii) < (i) < (ii) < (iv) < (v)

(c) (v) < (i) < (iv) < (ii) < (iii)

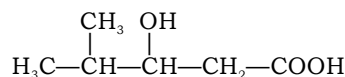
(d) (iii) < (iv) < (ii) < (i) < (v)

16. Which of the following has the shortest C-Cl bond?

[JEE Main 2020, 8 January Shift - II]

- (a) Cl-CH=CH-CH₃ (b) Cl-CH=CH-NO₂
(c) Cl-CH=CH-OCH₃ (d) Cl-CH=CH₂

17. The IUPAC name of the following compound is



[JEE Main 2019, 8 April Shift - I]

- (a) 4,4-dimethyl-3-hydroxybutanoic acid
(b) 2-methyl-3-hydroxypentan-5-oic acid
(c) 3-hydroxy-4-methylpentanoic acid
(d) 4-methyl-3-hydroxypentanoic acid

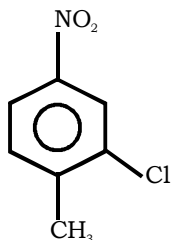
18. Which of the following compounds will show the

maximum 'enol' content?

[JEE Main 2019, 8 April Shift - II]

- (a) CH_3COCH_3 (b) $\text{CH}_3\text{COCH}_2\text{COCH}_3$
 (c) $\text{CH}_3\text{COCH}_2\text{COOC}_2\text{H}_5$ (d) $\text{CH}_3\text{COCH}_2\text{CONH}_2$

19. The correct IUPAC name of the following compound is



[JEE Main 2019, 9 April Shift - I]

- (a) 2-methyl-5-nitro-1-chlorobenzene
 (b) 3-chloro-1-methyl-1-nitrobenzene
 (c) 2-chloro-1-methyl 1-4-nitrobenzene
 (d) 5-chloro-4-methyl 1-1-nitrobenzene

20. The principle of column chromatography is

[JEE Main 2019, 10 April Shift - I]

- (a) differential absorption of the substances on the solid phase
 (b) differential adsorption of the substances on the solid phase
 (c) gravitational force
 (d) capillary action

21. In chromatography, which of the following statements is incorrect for R_f ?

[JEE Main 2019, 10 April Shift - II]

- (a) R_f value depends on the type of chromatography
 (b) Higher R_f value means higher adsorption
 (c) R_f value is dependent on the mobile phase
 (d) The value of R_f can not be more than one

22. The increasing order of nucleophilicity of the following nucleophiles is

- (1) CH_3CO_2^- (2) H_2O
 (3) CH_3SO_3^- (4) OH^-

[JEE Main 2019, 10 April Shift - II]

- (a) (1) < (4) < (3) < (2) (b) (2) < (3) < (1) < (4)
 (c) (4) < (1) < (3) < (2) (d) (2) < (3) < (4) < (1)

23. An organic compound A is oxidised with Na_2O_2 followed by boiling with HNO_3 . The resultant solution is then treated with ammonium molybdate to yield a yellow precipitate.

Based on the observation, the element present in the given compound is

[JEE Main 2019, 12 April Shift-I]

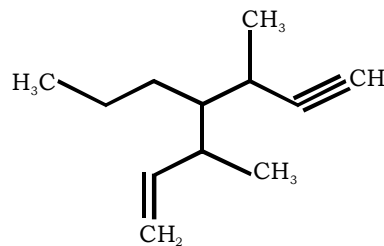
- (a) nitrogen (b) phosphorus
 (c) fluorine (d) sulphur

24. Which amongst the following is the strongest acid?

[JEE Main 2019, 9 January Shift - I]

- (a) CHBr_3 (b) CHI_3
 (c) CHCl_3 (d) $\text{CH}(\text{CN})_3$

25. The IUPAC name for the following compound is



[JEE Main 2019, 12 April Shift - II]

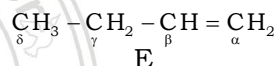
- (a) 3-methyl-4-(3-methylprop-1-enyl)-1-heptyne
 (b) 3, 5-dimethyl-4-propylhept-6-en-1-yne
 (c) 3-methyl-4-(1-methylprop-2-ynyl)-1-heptene
 (d) 3- 5-dimethyl-4-propylhept-1-en-6-yne

26. If dichloromethane (DCM) and water (H_2O) are used for differential extraction, which one of the following statements is correct?

[JEE Main 2019, 10 January Shift - I]

- (a) DCM and H_2O would stay as lower and upper layer respectively in the S.F.
 (b) DCM and H_2O would stay as upper and lower layer respectively in the separating funnel (SF)
 (c) DCM and H_2O will be miscible clearly
 (d) DCM and H_2O will make turbid/colloidal mixture

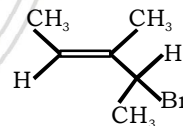
27. Which hydrogen in compound (E) is easily replaceable during bromination reaction in presence of light?



[JEE Main 2019, 10 January Shift - I]

- (a) β -hydrogen (b) δ -hydrogen
 (c) γ -hydrogen (d) α -hydrogen

28. What is the IUPAC name of the following compound?



[JEE Main 2019, 10 January Shift - II]

- (a) 3-bromo-3-methyl-1, 2-dimethylprop-1-ene
 (b) 3-bromo-1, 2-dimethylbut-1-ene
 (c) 2-bromo-3-methylpent-3-ene
 (d) 4-bromo-3-methylpent-2-ene

29. An organic compound is estimated through Dumas method and was found to evolved 6 moles of CO_2 , 4 moles of H_2O and 1 mole of nitrogen gas. The formula of the compound is

[JEE Main 2019, 11 January Shift - I]

- (a) $\text{C}_6\text{H}_8\text{N}$ (b) $\text{C}_{12}\text{H}_8\text{N}$
 (c) $\text{C}_{12}\text{H}_8\text{N}_2$ (d) $\text{C}_6\text{H}_8\text{N}_2$.

ANSWER

1. (5) 2. (b) 3. (c) 4. (d) 5. (d)
 6. (2) 7. (d) 8. (2) 9. (b) 10. (b)
 11. (d) 12. (d) 13. (c) 14. (a) 15. (a)
 16. (b) 17. (c) 18. (b) 19. (c) 20. (b)
 21. (b) 22. (b) 23. (b) 24. (d) 25. (d)
 26. (a) 27. (c) 28. (d) 29. (d)

