#### Exercise Marked Questions may have for Revision Questions. **PART - I : ONLY ONE OPTION CORRECT TYPE** 1. The degree of unsaturation of following compound C<sub>8</sub>H<sub>12</sub>O, C<sub>3</sub>H<sub>5</sub>N, C<sub>4</sub>H<sub>8</sub>O are respectively : (A) 4, 3, 2 (B) 3, 2, 1 (C) 2, 1, 3 (D) 2, 2, 3 2.🖎 Which of the following hydrocarbons give same product on hydrogenation. (A) 2-Methyl hex-1-ene & 3-Methyl hex-3-ene (B) 3-Ethyl hex-1-en-4-yne & 2-Methylhept-2-en-4-yne (C) 3-Ethylcycloprop-1-ene & 1,2-Dimethylcycloprop-1-ene (D) 2-Methylbut-2-ene & 3-Methylbut-1-ene 3. Number of moles of hydrogen will required for complete hydrogenation of one mole of following compound : (A) 6 (B) 7 (C) 5 (D) 3 4. How many alkenes on catalytic hydrogenation give isopentane as a product (consider only structural isomers)? (A) 2 (B) 3 (C) 4 (D) 5 5. If 1 mole H<sub>2</sub> is reacted with 1 mole of the following compound. Which double bond will be hydrogenated ? (D) d (A) c (B) b (C) a 6. Only two isomeric monochloro derivatives are possible for :-(A) n-Pentane (B) 2,4-Dimethyl pentane (C) Toluene (D) 2,3-Dimethyl butane 7. The number of possible monochloro derivatives of 2, 2, 3, 3-Tetramethylbutane is -(D) 1 (A) 2 (B) 3 (C) 4 8.🖎 Which of the following alkene gives four monochloro (structural isomer) products after hydrogenation ? (A) Pent-2-ene (B) 2-Methylbut-2-ene (C) 3-Methylhex-2-ene (D) 2, 3-Dimethylbut-2-ene

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#### STRUCTURAL IDENTIFICATION







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(C) 🥖

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True statements is/are



(B) Structure of X is

(C) Y on monochlorination produce 3 monochloro structural products.

`СООН. (D) Oxidative ozonolysis product of X is

23. Which of the following compound gives 1,4-Dimethyl cyclohexane when undergo catalytic hydrogenation.



## PART - III : SINGLE AND DOUBLE VALUE INTEGER TYPE

- 24. How many isomeric alkynes on catalytic hydrogenation gives 3-Ethyl-4-methylheptane ?
- 25. Find the number of structural isomers of fully saturated cycloalkane of molecular formulae C<sub>6</sub>H<sub>12</sub> which give three monochloro structural products.

$$(X) \qquad \qquad \begin{array}{c} H_2 / Ni \\ (a) \\ (b) \end{array} \qquad \begin{array}{c} Cl_2 / hv \text{ Monochlorination} \\ (c) \\ (c) \\ Number of product \end{array}$$
 (Number of structural isomers )

Calculate sum of number of products formed in the reaction a, b and c.

- 27.🖎 How many alkenes, alkynes and alkadienes can be hydrogenated to form Isopentane (Including all structural isomers)
- 28. 'n' number of alkenes yield 2,2,3,4,4-pentamethyl-pentane on catalytic hydrogenation and 'm' number of monochloro structural isomers are possible for this compound. Report your answer as (n + m).
- 29. How many isomeric structural alkene on catalytic hydrogenation gives 3-Methyl hexane.

30.函

26.

- $\xrightarrow{H_2/Ni} P \xrightarrow{Cl_2/hv} Q \text{ (Total number of monochloro structural products).}$
- 31.^ How many terminal alkynes having molecular mass 68 is possible ?

## PART - IV : JEE (MAIN) / AIEEE PROBLEMS (PREVIOUS YEARS)

#### On mixing a certain alkane with chlorine and irradiating it with ultraviolet light, it forms only one 32. monochloroalkane this alkane could be : [AIEEE 2003, 3/225] (1) propane (2) pentane (3) isopentane (4) neopentane. 33. Of the five isomeric hexanes, the isomer which can give two monochlorinated compounds is ? [AIEEE 2005, 3/225] (1) n-Hexane (2) 2,3-Dimethylbutane (3) 2,2-Dimethylbutane (4) 2-Methylpentane 34. In the following sequence of reactions, the alkene affords the compound 'B' $\xrightarrow{O_3} A \xrightarrow{H_2O} B$ , compound B is CH<sub>3</sub>CH=CHCH<sub>3</sub> <sup>-</sup> [AIEEE 2008, 3/105] (1) CH<sub>3</sub>CH<sub>3</sub>CHO (2) CH<sub>3</sub>COCH<sub>3</sub> (3) CH<sub>3</sub>CH<sub>2</sub>COCH<sub>3</sub> (4) CH<sub>3</sub>CHO 35. Ozonolysis of an organic compound 'A' produces acetone and propionaldehyde in equimolar mixture. Identify 'A' from the following compounds : [AIEEE 2011, 4/120] (1) 1-Pentene (2) 2-Pentene (3) 2-Methyl-2-pentene (4) 2-Methyl-1-pentene 36. Which branched chain isomer of the hydrocarbon with molecular mass 72u gives only one isomer of mono substituted alkyl halide ? [AIEEE 2012, 4/120] (2) Neopentane (1) Tertiary butyl chloride (3) Isohexane (4) Neohexane 37. Which compound would give 5-keto-2-methyl hexanal upon ozonolysis ? [JEE(Main)-2015, 4/120] CH. CH.

(2)



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# Answers

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EXERCISE									
1.	(B)	2.	(D)	3.	(C)	4.	(B)	5.	(D)
6.	(D)	7.	(D)	8.	(B)	9.	(D)	10.	(B)
11.	(B)	12.	(A)	13.	(C)	14.	(B)	15.	(C)
16.	(C)	17.	(B)	18.	(C)	19.	(D)	20.	(C)
21.	(CD)	22.	(BCD)	23.	(ABC)	24.	3	25.	3
26.	5	27.	6	28.	4	29.	6	30.	2
31.	2	32.	(4)	33.	(2)	34.	(4)	35.	(3)
36.	(2)	37.	(2)						