## ORGANIC CHEMISTRY



## DPP No. 8

Total Marks: 30

Max. Time: 33 min.

**Topic: Structural Determination** 

### Type of Questions

Single choice Objective ('-1' negative marking) Q.1 to Q.5

Comprehension ('-1' negative marking) Q.6

Subjective Questions ('-1' negative marking) Q.7

Match the Following (no negative marking) Q.8

M.M., Min.

(3 marks, 3 min.)

[15, 15] (3 marks, 3 min.) [3, 3]

(4 marks, 5 min.)

[4, 5]

(8 marks, 10 min.) [8, 10]

Which of the following is correctly matched with degree of unsaturation? 1.\_

(D) 
$$CH=CH_2$$
,  $CN$ 

- 2. How many alkene isomers will produce 1-Ethyl-3-methylcyclopentane on catalytic hydrogenation? (A) 6(B) 7(C) 8(D) 9
- 3. How many products (structural isomers) are formed by monochlorination of?

(A) 6

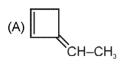
(B)7

(C) 8

(D) 9

4. 
$$X \xrightarrow{O_3/Z_{n_1}H_2O} H-C-CH_2-C-CH_2-C-H+HCHO$$

The structure of X will be:





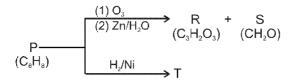
 $O_3$ , Zn /  $H_2O$   $\rightarrow$  3-Oxobutanal only 5. [X]

Four monochloro structural isomeric products

Compound 'X' is:

- (A) 1-Methylcyclopropene
- (C) 1, 4-Dimethylcyclohexa-1,3-diene
- (B) 1, 4-Dimethylcyclohexa-1,4-diene
- (D) 1, 2-Dimethylcyclohexa-1,4-diene

#### 6. Comprehension #



- (a). Total number of monochloro structural products are formed on chlorination of "T":

- (B) 3
- (C) 4
- (D) 5
- (b). How many alkyne can give "T" on catalytic hydrogenation:
- (A) 1
- (B) 2
- (D) Not possible
- A compound with molecular formula  $C_{_{13}}H_{_{24}}$  absorbs two molar equivalents of hydrogen to form 3-Ethyl-7-7. methyldecane. On reductive ozonolysis it forms following three products.

, and 
$$H$$

Assign the structure of the compound.

#### 8. Match the column:

Column(I) (Compound)	Column (II) (No. of monochloro structural product)
$(A) \qquad \xrightarrow{Cl_2/hv} \qquad \longrightarrow$	(p) = 1
$(B) \qquad \stackrel{\text{Me}}{\longrightarrow} \qquad \underbrace{\text{CI}_{2}/\text{hv}}_{2}$	(q) = 2
(C) $CI_2/hv \rightarrow CI_2/hv$	(r) = 3
(D) ← Cl <sub>2</sub> /hv ← Cl <sub>2</sub> /hv	(s) = 4

# Answer Key

### **DPP No. #8**

1.

6.

- (B) (a).
- (C)
- 2. (b).
- (C) (A)
- 3.

- 5.

(D)

(B)  $(A \rightarrow q)$ ;  $(B \rightarrow s)$ ;  $(C \rightarrow p)$ ;  $(D \rightarrow r)$ 





## **Hints & Solutions**

DPP No. #8

**2.**  $\frac{2}{8}$   $\frac{3}{6}$ 

5. 
$$\underbrace{ \begin{array}{c} O_3 \ , \ Zn \ / \ H_2O \\ \hline \end{array} }_{O_3} 2 \ CH_3-C-CH_2-CHO$$

$$\underbrace{ \begin{array}{c} CI_2 \ / \ hv \\ \hline \end{array} }_{IJ} Four monochloro structural isomeric products$$

6. 
$$CH_{2} = CH - C - CH = CH_{2}$$

$$CH_{2} = CH - C - CH = CH_{2}$$

$$CH_{2} = CH - C - CH = CH_{2}$$

$$CH_{2} = CH - C - CH - CH_{2} + 3HCHO$$

$$CH_{2} = CH - CH_{2} - CH_{2} - CH_{3} + CH_{3} - CH_{2} - CH_{3} - CH_{3}$$

$$CH_{3} = CH_{3} - CH_{2} - CH_{3} - CH_{3}$$

$$CH_{3} = CH_{3} - CH_{3} - CH_{3} - CH_{3} - CH_{3}$$