PAPER-35

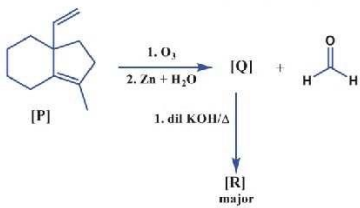
SECTION- I

(ONE OR MORE THAN ONE)

Each question has **FOUR** options for correct answer(s). **ONE OR MORE THAN ONE** of these four option(s) is (are) correct option(s).
For each question, choose the correct option(s) to answer the question.
Answer to each question will be evaluated according to the following marking scheme:

Full Marks:	+4 If only (all) the correct option(s) is (are) chosen.
Partial Marks:	+3 If all the four options are correct but **ONLY** three options are chosen.
Partial Marks:	+2 If three or more options are correct but **ONLY** two options are chosen, both of which are correct options.
Partial Marks:	+1 If two or more options are correct but **ONLY** one option is chosen and it is a correct option.
Zero Marks:	0 If none of the options is chosen (i.e. the question is unanswered).
Negative Marks:	-2 In all other cases.

1. Choose the **CORRECT** option(s) regarding the given reaction scheme



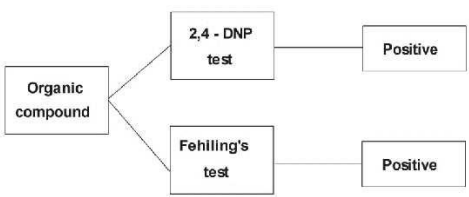
A) Compound **[R]** can respond to positive 2,4-DNP test as well as positive tollen's test

B) Compound **[R]** can respond to positive 2,4-DNP test and negative tollen's test

C) Degree of unsaturation in **[R]** is same as **[P]**

D) **[Q]** and **[R]** can show Iodoform test

2.



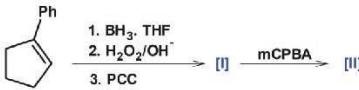
How many among the following compounds will given the above result?

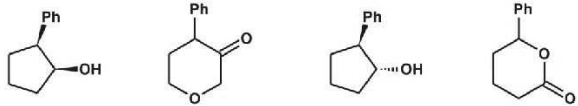
i. cyclohexanone ii. acetone iii. propionaldehyde

iv. acetophenone v. acetaldehyde vi. Benzophenone vii. Benzaldehyde

A) 2 B) 3 C) 4 D) 5

3. The product(s) formed in the following reaction is/are:





A) [I] B) [II] C) [I] D) [II]

4. Consider major path in each stage

'**P**' is

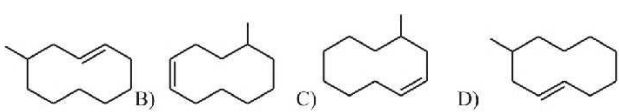
A) **[P]** can be 3,3-dimethyl-1-pentyne

B) **[P]** can be 3,3-dimethyl-1-butyne

C) **[P]** 2-hexyne

D)**[P]** 3-methyl-1-butyne

5. In the given four structures, identify the non-stereo isomeric structure



6. Choose the **CORRECT** option(s) regarding the given reaction below

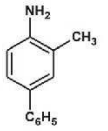
A) compound **[Q]** can show tautomerism

B) **[P]** and **[Q]** both can show tollen's test

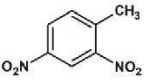
C) **[Q]** upon treatment D_3O^+ gives **[R]** which contains 4 deuterium atoms

D) **[Q]** up on treatment with CH_3MgBr followed by heat with conc. H_2SO_4 gives aromatic compounds

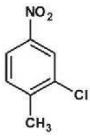
7. Which of the following is/are "**NOT**" correctly matched?

A) 

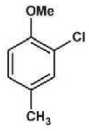
(4-ethyl-2-methyl aniline)

B) 

(4-chloro-1,3-dinitrobenzer

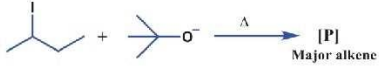
C) 

(2-chloro-1-methyl-4-nitro benzene)

D) 

(2-chloro-4-methyl anisole)

8. Choose the **CORRECT** option(s) among the following about **[P]**



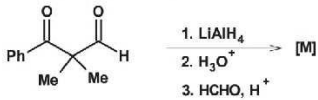
A) In **[P]** is a two $C-H$ bonds which can involve in hyper conjugation

B) **[P]** cannot show stereo isomerism

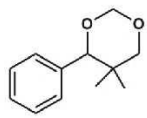
C) **[P]** upon hydrogenation gives mainly n-butane

D) Mono chlorination of **[P]** gives 3

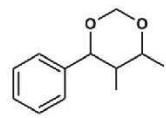
9. Identify the product **[M]**:



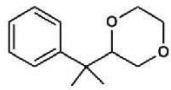
A)



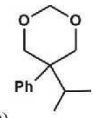
B)



C)



D)



SECTION- II

(NUMERICAL VALUE)

The answer to each question is a **NUMERICAL VALUE**

For each question, enter the correct numerical value (in decimal notation, truncated/rounded off to the **second decimal place;** e.g. 6.25, 7.00, -0.33, -.30, 30.27, -127.30) designated to enter the answer.

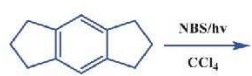
Answer to each question will be evaluated according to the following marking scheme:

Full Marks: +3 If **ONLY** the correct numerical value is entered as answer.

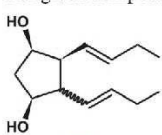
Zero Marks: 0 in all other cases.

---

10. If **X** is the total number of mono bromo derivatives of the given reaction then what is 10X/8



11. For given compound **[N]**, the total number of geometrical isomer are



[N]

Indicates that configuration at specific carbon and the geometry of double bond is fixed.

Indicates that configuration at specific carbon & the geometry of double bond is NOT fixex.

12. If **[X]** is the total number of hydrogens present in 5-sec-butyl-4-isopropyldecane, What is the value of [X] / 4?

SECTION – III

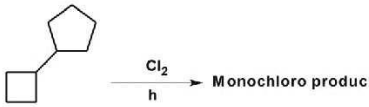
(COMPREHENSION TYPE)

This section contains Paragraphs Questions. Based on each paragraph, there are 2 or 3 questions. Each question has 4 options (A), (B), (C) and (D) for its answer, out of which **ONLY ONE** option can be correct.

Marking scheme: +3 for correct answer, 0 if not attempted and -1 in all other cases.

Paragraph For Questions 13& 14

Chlorination in presence of sunlight (hυ) is known as a photochlorination. It is free radical substitution. For the given reaction



13. Total possible monochloro products obtained in given reaction is

A) 12 B) 8 C) 16 D) 6

14. Total number of fractions obtained on frictional distillation of monochloro products is

A) 4 B) 7 C) 9 D) 10

SECTION- III

(MATRIX MATCH)

Each question has **TWO (02)** matching lists: **LIST-I** and **LIST-II**.

FOUR options are given representing matching of elements from **LIST-I** and **LIST-II**.

For each question, choose the option corresponding to the correct matching.

Full Marks : +3 If ONLY the option corresponding to the correct matching is chosen.

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered).

Negative Marks : –1 in all other cases.

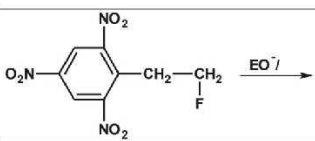
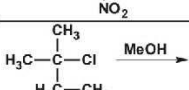
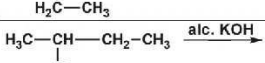
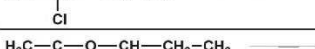
15. Match the following List-I with List-II

Acids		pKa Values	
P)	Neutralisation equivalent(E.Wt) is 59, on heating it gives another carboxylic acid of NE 74.	1)	Maleic acid
Q)	NE is 59, stable to heat, forms anhydride easily	2)	Fumaric acid
R)	NE is 58, stable to heat, forms anhydride easily	3)	α-methyl malonic acid
S)	NE is 58, stable to heat, its pKa_2 is less than that of its diastereomer.	4)	Succinic acid

A) P-3, Q-4, R-2, S-1 B) P-4, Q-3, R-1, S-2

C) P-3, Q-4, R-1, S-2 D) P-4, Q-2, R-3, S-1

16. Match the following.

	List-I (Reaction)		List-II (Most appropriate mechanism expected)
P)		1)	E_2 mechanism
Q)		2)	Hoffman product is formed as major product
R)		3)	E_1CB mechanism
S)		4)	E_1 mechanism
		5)	It is single step reaction

A) P-1,5;Q-1,5;R-2,3;S-2 B) P-3;Q-4;R-3;S-2

C) P-3;Q-4;R-1,5;S-2,5 D) P-1,5;Q-1,2;R-1,5;S-2

ANSWERS

1	2	3	4	5	6	7	8	9	10
B	**A**	**D**	**BC**	**B**	**A**	**B**	**CD**	**A**	**2.5**
11	12	13	14	15	16				
4	**9**	**C**	**D**	**C**	**C**				