ORGANIC CHEMISTRY

DPP

DAILY PRACTICE PROBLEMS

DPP No. 15

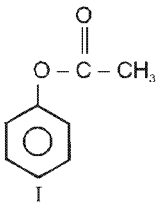
Total Marks : 34

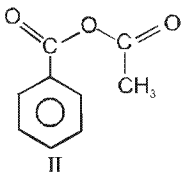
Max. Time : 40 min.

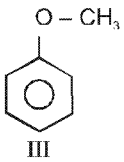
Topic : General Organic Chemistry

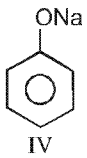
Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.2	(3 marks, 3 min.)	[6, 6]
Multiple choice objective ('–1' negative marking) Q.3	(4 marks, 4 min.)	[4, 4]
Match the Following (no negative marking) Q.4	(8 marks, 10 min.)	[8, 10]
Subjective Questions ('–1' negative marking) Q.5 to Q.8	(4 marks, 5 min.)	[16, 20]

1. The reactvity order of benzene ring for the given reaction is (benzene ring with highest π electron density will be most reactive) Aromatic compound $\xrightarrow{E^{\oplus}}$


I

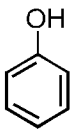

II

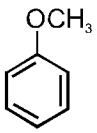

III

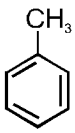

IV

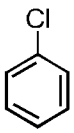
(A) III > I > IV > II
(B) I > III > IV > II
(C) III > IV > II > I
(D) IV > III > I > II

2. Arrange the following compounds in the order of decreasing reactivity towards electrophilic substitution


(I)


(II)


(III)

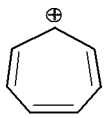

(IV)

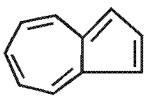

(V)

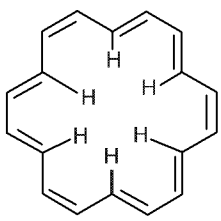
(A) V > IV > III > II > I
(B) I > II > III > V > IV
(C) I > II > IV > III > V
(D) I > III > IV > II > V

3.* Which of the following are Aromatic in nature.

(A) 

(B) 

(C) 

(D) 

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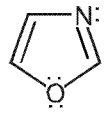
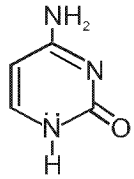
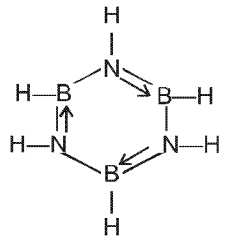
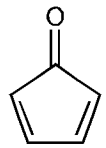
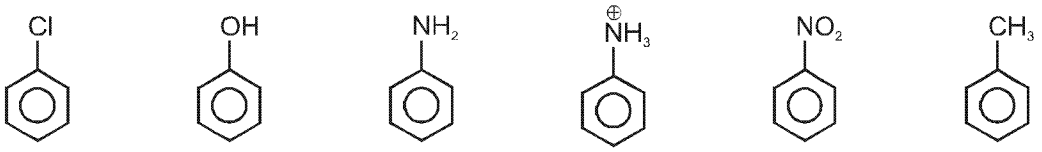
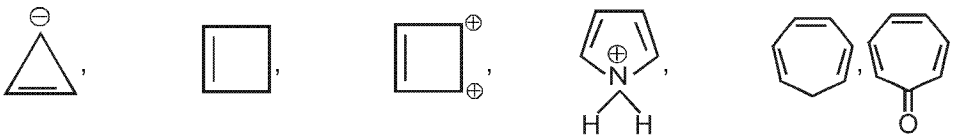
4. Match the following :

Column – I	**Column – II**
(A) 	(p) Aromatic
(B) 	(q) Non aromatic
(C) 	(r) Anti aromatic
(D) 	(s) Heterocyclic

5. How many of the following compounds are more reactive than benzene towards electrophilic substitution.



6. How many species out of the following are aromatic ?



7. Explain the terms Inductive and Electromeric effects.

8. Which bond is more polar in the following pairs of molecules?

(a) $H_3C - H$ $H_3C - Br$ (b) $H_3C - NH_2$ $H_3C - OH$ (c) $H_3C - OH$ $H_3C - SH$

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Answer Key

DPP No. # 15

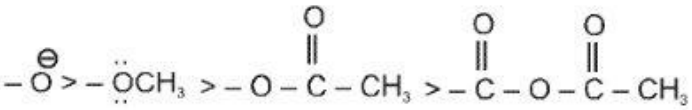
1. (D) **2.** (B) **3.** (BCD)

4. (A - p,s) ; (B - p,s) ; (C - p,s) ; (D - r) **5.** 3 **6.** 2

Hints & Solutions

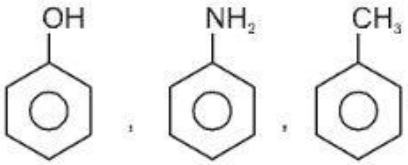
DPP No. # 15

1. (D) Due to +m order

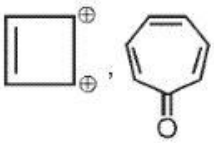


2. Rate of electrophilic substitution reaction $\propto$ Stability of arenium ion.

4. Aromatic $\rightarrow$ planar, cyclic , $(4n+2)\ \pi e^{\ominus}$, complete conjugation
Antiaromatic $\rightarrow$ planar, cyclic , $(4n)\ \pi e^{\ominus}$, complete conjugation
Non aromatic– cyclic structure with non-planar geometry with any hybridization

5.  are more reactive than benzene towards electrophilic substitution.

6. Aromatic species are



7. Inductive effect is permanent displacement of shared pair of electron along the chain of carbon atom due to presence of polar covalent bond.
Electromeric effect is a temporary effect. It is defined as the complete transfer of a shared pair of π-electrons to one of the atoms joined by a multiple bond on the demand of an attacking reagent.

8. (a) H_3C-Br (b) H_3C-OH (c) H_3C-OH

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