

## NOMENCLATURE

1. The number of compound/s given below which contain/s  $-\text{COOH}$  group is \_\_\_\_\_.

- (A) Sulphanilic acid
- (B) Picric acid
- (C) Aspirin
- (D) Ascorbic acid

2. In  $\overset{1}{\text{C}}\text{H}_2=\overset{2}{\text{C}}=\overset{3}{\text{C}}\text{H}-\overset{4}{\text{C}}\text{H}_3$  molecule, the hybridization of carbon 1, 2, 3 and respectively are :

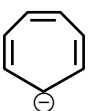
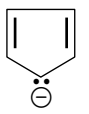

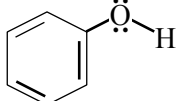
- (1)  $\text{sp}^3, \text{sp}, \text{sp}^3, \text{sp}^3$
- (2)  $\text{sp}^2, \text{sp}^2, \text{sp}^2, \text{sp}^3$
- (3)  $\text{sp}^2, \text{sp}, \text{sp}^2, \text{sp}^3$
- (4)  $\text{sp}^2, \text{sp}^3, \text{sp}^2, \text{sp}^3$

3. Mesityl oxide is a common name of :

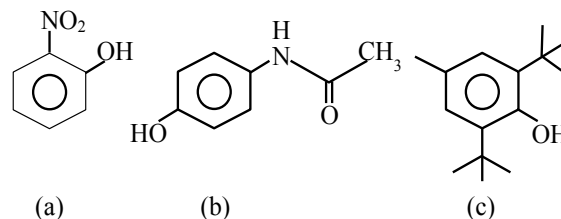
- (1) 2,4-Dimethyl pentan-3-one
- (2) 3-Methyl cyclohexane carbaldehyde
- (3) 2-Methyl cyclohexanone
- (4) 4-Methyl pent-3-en-2-one

4. The total number of C–C sigma bond/s in mesityl oxide ( $\text{C}_6\text{H}_{10}\text{O}$ ) is \_\_\_\_\_. (Round off to the Nearest Integer).

5. Which one of the following compounds is not aromatic ?

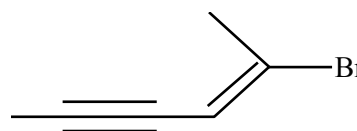
- (1) 
- (2) 
- (3) 
- (4) 

6. The compound/s which will show significant intermolecular H-bonding is/are :



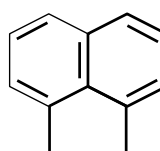

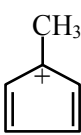

- (1) (b) only
- (2) (c) only
- (3) (a) and (b) only
- (4) (a), (b) and (c)

7. Choose the **correct** name for compound given below :



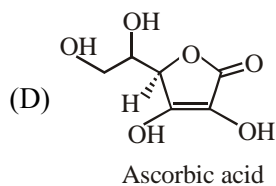
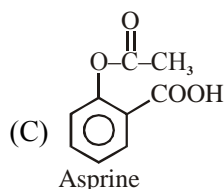
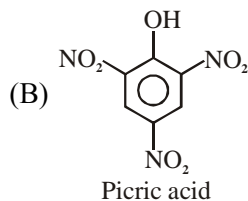
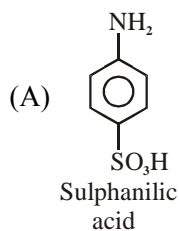
- (1) (4E)-5-Bromo-hex-4-en-2-yne
- (2) (2E)-2-Bromo-hex-4-yn-2-ene
- (3) (2E)-2-Bromo-hex-2-en-4-yne
- (4) (4E)-5-Bromo-hex-2-en-4-yne

8. Which one of the following compounds is aromatic in nature ?

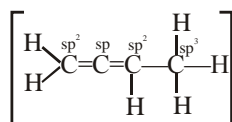
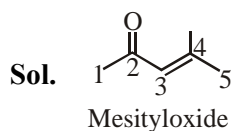
- (1) 
- (2) 
- (3) 
- (4) 

**SOLUTION****1. Official Ans. by NTA (1)**

Sol.  $\longrightarrow$  COOH group present in

**2. Official Ans. by NTA (3)**

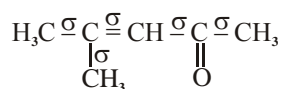
Sol.  $[\overset{1}{\text{C}}\text{H}_2=\overset{2}{\text{C}}=\overset{3}{\text{C}}\text{H}-\overset{4}{\text{C}}\text{H}_3]$

**3. Official Ans. by NTA (4)**

IUPAC [4-Methylpent-3-en-2-one]


**4. Official Ans. by NTA (5)**

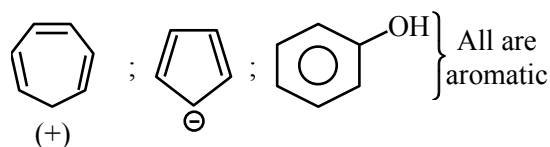
Sol. Mesityl oxide



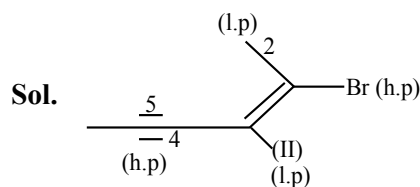
$\therefore \text{C} = \overset{\sigma}{\text{C}} = 5$

**5. Official Ans. by NTA (3)**

Sol.  : Non aromatic

**6. Official Ans. by NTA (1)**

Sol. (a) Shows intra molecular H-bonding  
(b) Shows significant intermolecular H-bonding  
(c) It do not show intermolecular H-bonding due to steric hindrance.

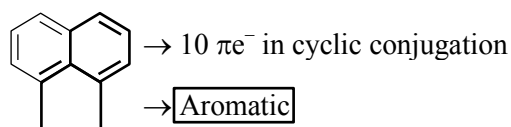
**7. Official Ans. by NTA (3)**


h.p.  $\Rightarrow$  higher priority  
l.p.  $\Rightarrow$  lower priority


2E -2- bromo hex -2- en-4-yne


**8. Official Ans. by NTA (4)**

Sol. (1) (Acenaphthene)



(2)   $\rightarrow 4 \pi e^-$  in ring conjugation  $\Rightarrow$  Anti Aromatic

(3)   $\Rightarrow 4 \pi e^-$  in ring conjugation  $\Rightarrow$  Antiaromatic

(4)   $\Rightarrow 6 \pi e^-$  in ring conjugation  $\Rightarrow$  **Aromatic**  
Cyclopentadienyl anion