NUCLEUS EDUCATION
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IIT - ORGANIC CHEMISTRY

NURTURE

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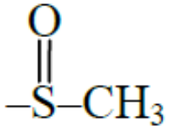
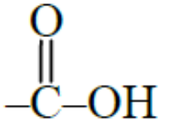
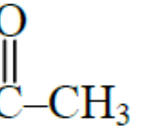
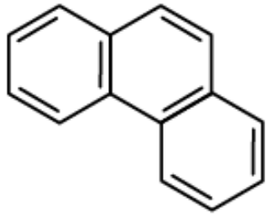
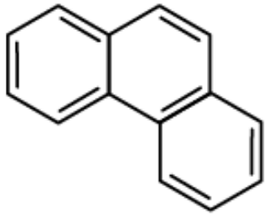
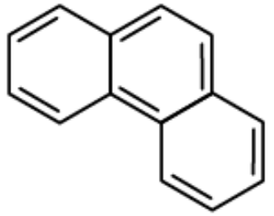
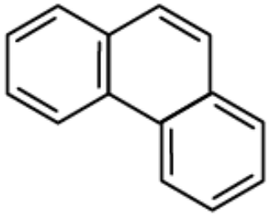
1. For the given molecule 

Column – I (Group(Z))	**Column – II (Effect of group 'Z' in above compound)**
(A) — $\overset{\oplus}{N}H_3$	(P) The group donates the e^- inductively as well as through resonance
(B) —NO	(Q) The group withdraws the e^- inductively and donates through resonance
(C) —OC_2H_5	(R) The group withdraw the e^- inductively but does not donate or withdraw e^- through resonance
(D) —$O^{\ominus}$	(S) The group withdraw the e^- inductively and donate or with draw through resonance
	(T) The group increases net e^- density on benzene

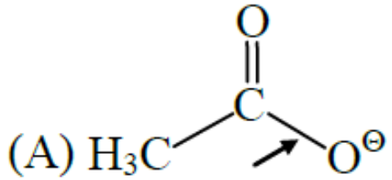
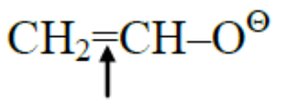
2. Which of the given group exhibit +R as well as –R effect when attached with suitable group:

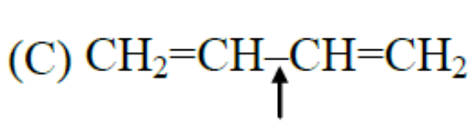
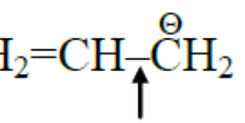
(A)  (B)  (C)  (D) $-CH=CH_2$

3. Most stable resonating structure is :

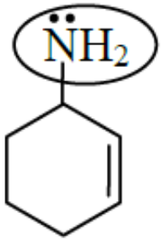
(A)  (B)  (C)  (D) 

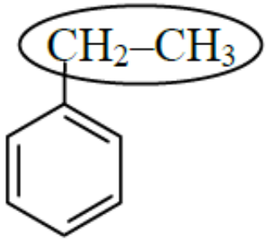
4. In which of the following compound bond order is 1.5 for indicated bond ?

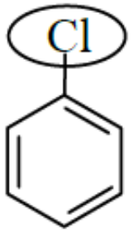
(A)  (B) 

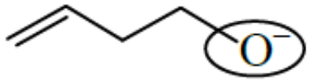
(C)  (D) 

5. Which of the following encircled group does not participate in resonance :

(A) 

(B) 

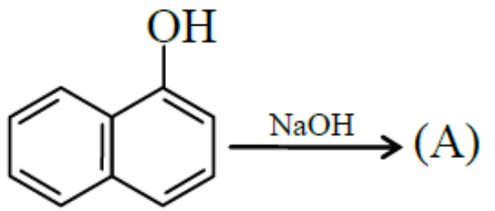
(C) 

(D) 

6. Which resonating structure of nitroethene is never possible ?

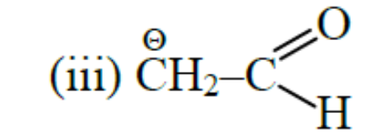
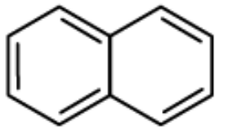
(A) $CH_2=CH-\overset{\oplus}{N}(-O^-)=O$ (B) $\overset{\oplus}{C}H_2-\overset{\ominus}{C}H-\overset{\oplus}{N}(-O^-)=O$ (C) $\overset{\oplus}{C}H_2-CH=N(-O^-)=O$ (D) $\overset{\oplus}{C}H_2-CH=\overset{\oplus}{N}(O^-)O^-$

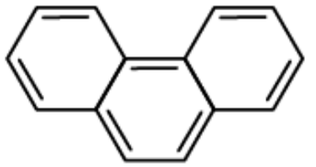
7. Total resonating structures of the product (A) is



(A) 7 (B) 8 (C) 9 (D) 10

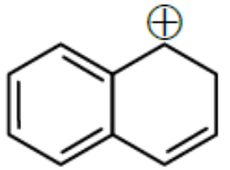
8. Total number of structures which are most stable resonating structures among all their respective resonating structures :

(i) $CH_2=CH-CH=CH_2$ (ii) $\overset{\ominus}{C}H_2-\overset{\oplus}{N}\equiv N$ (iii)  (iv) 

(v) $\overset{\ominus}{C}H_2-CH=CH-CH=\overset{\oplus}{O}-CH$ (vi)  (vii) $CH_2=\overset{\oplus}{F}$

(viii) $^{\ominus}=\overset{\oplus}{N}=^{\ominus}$

9. How many resonating structures of carbocation 'M' as shown below are possible which involves monocation (excluding given resonating structure) :

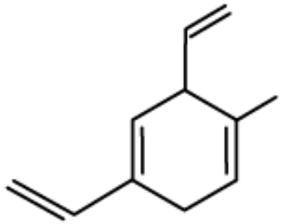


'M'

10. X = Number of π electrons present in the compound 'P' :

Y = Number of π electrons involve in conjugation in compound 'P' :

Then value of (X–Y) is :



'P'