CHEMISTRY

TARGET : JEE Advanced - 2021

CAPS – 6
GOC

Answer Key

1.	(B)	**2.**	(B)	**3.**	(A)	**4.**	(B)	**5.**	(B)
6.	(C)	**7.**	(D)	**8.**	(D)	**9.**	(B)	**10.**	(AB)
11.	(ABD)	**12.**	(BD)	**13.**	(ABD)	**14.**	(BC)	**15.**	(BCD)
16.	(BCD)	**17.**	(D)	**18.**	(C)	**19.**	(B)	**20.**	(10)
21.	(2212)	**22.**	(5444)	**23.**	(6)	**24.**	(7)	**25.**	(13)
26.	(A) R, T (B) P, S, T (C) Q, S, T (D) P,Q,R,S, T								
27.	(A) S (B) R (C) Q (D) P								

Soution

1. r : pure double bond   y : $CH_3 - NH_2$ pure single bond

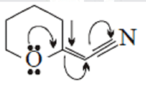
x : Partial double bond character   p : Partial double bond character

q : Partial single bond character   z : z and x are equal

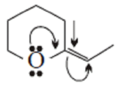
2. **(B)**

3. Indicated bond is a double bond maximum delocalisation (by Resoance & Hyperconjugation) maximum single bond character hence minimum rotationla Energy barrier.

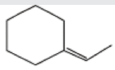
Rotational Energy barrier α Bond Strength



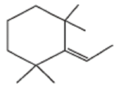
* High delocalisation
* Higher single bond character



* Moderate delocalisation

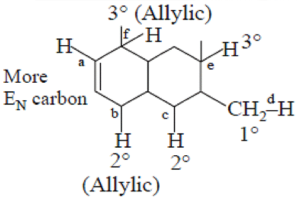


* 7 Hyper conjugating structure

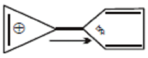


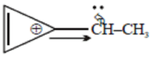
* 3 Hyper conjugating structure
* Less single bond character

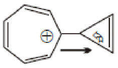
4.



5.

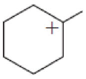






6. **(C)**

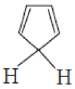
7. More resonance More single bond character less rotational energy is required.

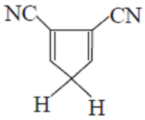
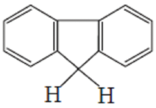
8.  is more stable due to more number of α-hydrogen [number of α-hydrogen = 7]

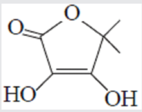
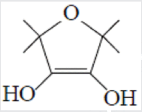
9. This is cis - isomer, having 4 α-hydrogen.

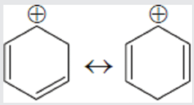
10. Nitroso $\rightleftharpoons$ oxime (Tautomer)

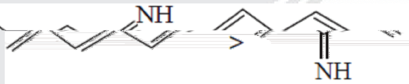
imine $\rightleftharpoons$ enamine (Tautomer).

11. (A)  is more acidic than $CH_2=CH-CH_2-CH=CH_2$ due to more stablization of –ve charge in conjugate base.

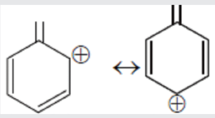
(B)  is more acidic than  due to more stablization of –ve charge in conjugate base.

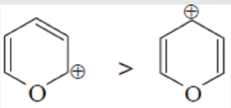
(D)  is more acidic than  due to more stablization of –ve charge in conjugate base.

12. (A)  R.S. having same R.E.

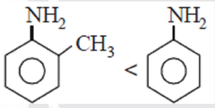
(B) 

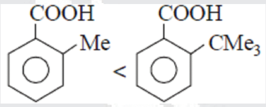
extended cross conjugation

(C)  R.S. having same R.E.

(D) 

extended cross

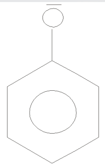
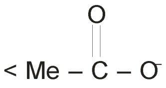
13. (A)  (Basic order)

(B)  (SIR) (Acidic order)

(C) $HC \equiv CH > NH_3$ (Acidic order)

sp hybrid carbon

more elctronegative

(D)  

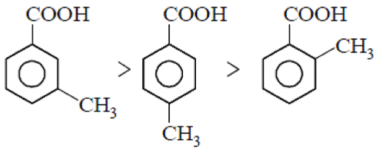
$< Me - \overset{\overset{O}{\|}}{C} - O^{-}$ (Equivalent R.S.)

Non equivalent R.S.

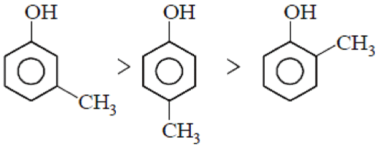
14. (A) chain isomers. (B) They are functional isomers not tautomers.

(C) They have same R.E.

15. (A)

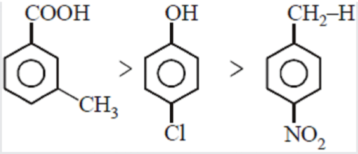


(B) + I + H SIR



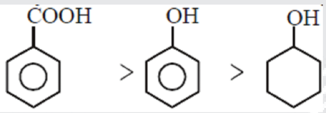
+ I + H, + I + H + I

(C)



Carboxylic acid Phenol Benzylic H

(D)

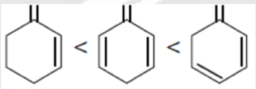


Carboxylic acid Phenol Alcohol

16. (B)

HoC ∝ no. of carbon

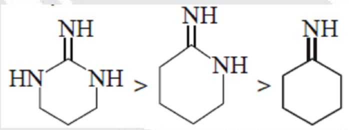
(C)



Resonance energy ∝ delocalisation / Conjugation

simple < cross < exterted

(D)



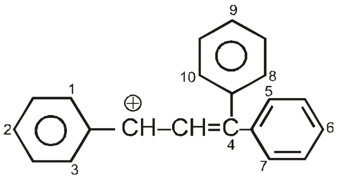
Boricity ∝ e^- density of N-atom

17. Based on stability of anion.

18. Chiral centre = 9

19. Based on stability of free radical.

20.



21. (a) H_2O is stronger acid than $MeC \equiv CH$

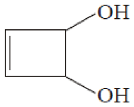
keq < 1 Backward Direction (2)

(b) H_2CO_3 is stronger acid than PhOH

keq < 1 Backward Direction (2)

(c) EtCOOH is stronger acid than NH_3

keq > 1 Forward direction (1)

(d) H_2O is stronger acid than 

keq < 1 Backward direction (2)

22. Naphthalene is 10 π e's system

i.e. there are 5 π bonds

Expected (theoretical) heat of hydrogen = – 28.6 × 5 = – 143 kCal/mol

Observed (experimental) heat of hydrogen = – 89

$\therefore$ R.E. = – 89 – (–143)

= 54 kCal / mol

23. (6)

24. (7)

25. (13)

26. (A) R, T (B) P, S, T (C) Q, S, T (D) P,Q,R,S, T

27. More the π bond more will be the HOH .Order of heat of hydrogenation $\alpha \frac{1}{\text{stability}}$