Sri Chaitanya IIT Academy, India

A.P, TELANGANA, KARNATAKA, TAMILNADU, MAHARASHTRA, DELHI, RANCHI

A right Choice for the Real Aspirant

ICON CENTRAL OFFICE, MADHAPUR-HYD

Sec: Sr.IPLCO **Dt: 02-08-15**

Time: 09:00 AM to 12:00 Noon **RPTA-1** **Max.Marks: 180**

PAPER-1

KEY & SOLUTIONS

PHYSICS

1	**D**	2	**BD**	3	**ABC**	4	**ABCD**	5	**A**	6	**BCD**
7	**ABCD**	8	**ABD**	9	**ABCD**	10	**AD**	11	**3**	12	**3**
13	**1**	14	**5**	15	**5**	16	**2**	17	**6**	18	**2**
19	**9**	20	**5**								

CHEMISTRY

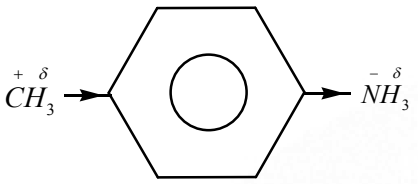
21	**ABCD**	22	**ABC**	23	**AB**	24	**BCD**	25	**ABCD**	26	**ABCD**
27	**ABC**	28	**BCD**	29	**ABC**	30	**CD**	31	**5**	32	**3**
33	**4**	34	**9**	35	**2**	36	**5**	37	**5**	38	**5**
39	**5**	40	**4**								

MATHS

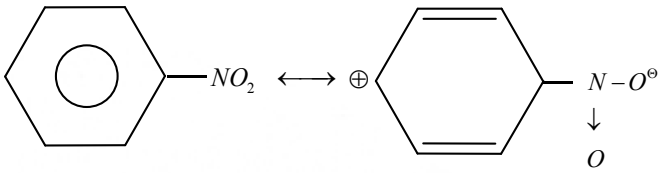
41	**AC**	42	**ABCD**	43	**BD**	44	**BCD**	45	**ABC**	46	**C**
47	**ABCD**	48	**ABC**	49	**ABD**	50	**AD**	51	**5**	52	**9**
53	**5**	54	**3**	55	**3**	56	**5**	57	**6**	58	**1**
59	**5**	60	**4**								

CHEMISTRY

21. A) $-CH_3$ in p- position releases electrons by +I effect and increases distance between positive and negative poles



$\mu = 4.39D$

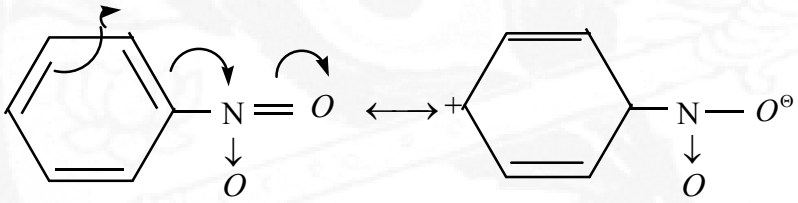


$\mu = 3.93D$

B) When compared to $-CH_3, -C(CH_3)_3$ releases electrons to a greater extent by exerting + I effect

totuene $\mu = 0.37D$ tert butyl benzene $\mu = 0.7D$

C) –M effect of No_2 increases the distance between +ve and –ve poles



CH_3NO_2

$\mu = 3.6D$

D) In transisomer the distance between positive and negative poles is increasing and dipole moment is increases

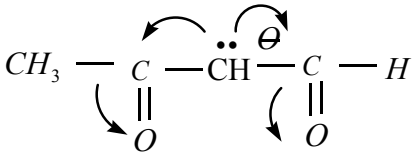
22. A) -CHO Group in the side chain of ring is in 3rd position from point of connection to ring. Hence the name.

B) $-COCH_3$ is parent chain. Ring is substituent

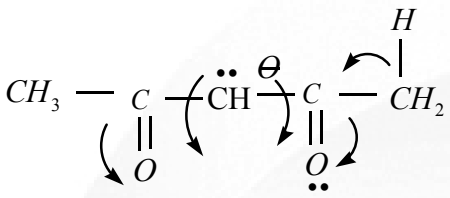
C) Two methyl groups one on C_2 the other on N – are indicated as –N , 2 – di methyl

D) is not a correct name correct name is 4-chlorobut –en-2-ol

23. A) the conjugate base of 3-oxobutanal is more stable than that of diketone given



In the conjugate base of diket one there is competitor for spreading of charge on right side



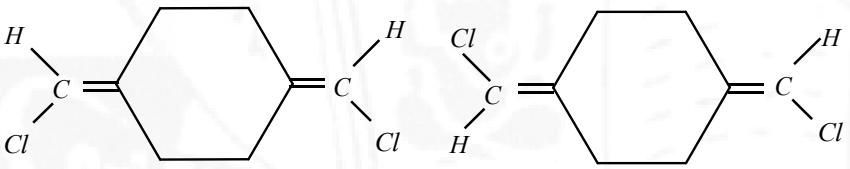
competent

B) Picric acid is stronger than nitro acetic acid as the 3 NO_2 groups exert – m effect and stabilize the conjugate base to a greater extent

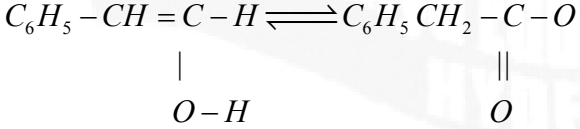
24. B) cyclooctene exists in cis, trans forms cis is more stable, trans is less stable due to twist structure.

C) It is planar and like cumulative polyene with 3 double bonds exhibits geometrical isomerism as the terminal carbons are connected to two different atoms.

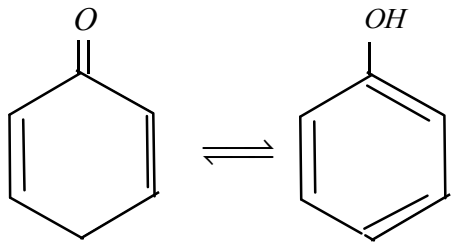
D)



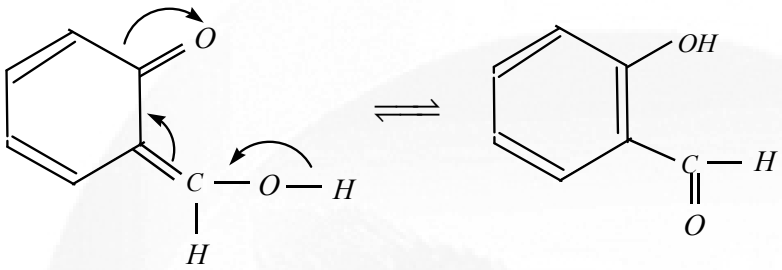
25) A)



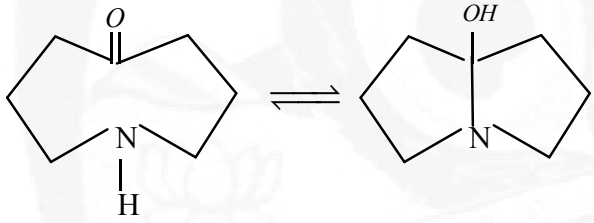
B)



C)



D)



26. Acetoacetic ester exists as a mixture of keto - enolforms and exhibits the properties of both forms

$$CH_3-\underset{\underset{O}{\|}}{C}-CH_2-\underset{\underset{O}{\|}}{C}-OC_2H_5 \xrightarrow[H^+]{NH_2OH} CH_3-\underset{\underset{NOH}{\|}}{C}-CH_2-\underset{\underset{O}{\|}}{C}-OC_2H_5$$

$$\xrightarrow[H^+]{NH_2OH} CH_3\underset{\underset{OH}{|}}{CH}-CH_2-\underset{\underset{O}{\|}}{C}-OC_2H_5$$

$$CH_3-C=CH-C-OC_2H_5 \xrightarrow{Na} CH_3-C=CH-C-OC_2H_5 + \frac{1}{2}H_2$$

$$\begin{array}{llll} | & || & || & || \\ OH & O & O\Theta N\overset{\oplus}{a} & O \end{array}$$

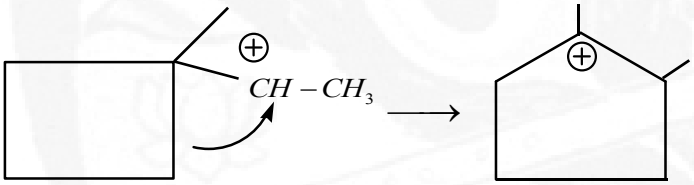
$$\xrightarrow{Br_2} decolorised$$

27.

It is no bond resonance called Baker Nathan effect..

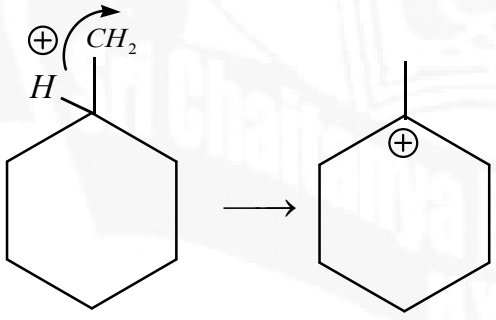
It is less predominating than resonance

28. B)



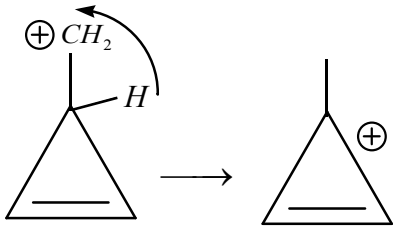
Secondary More stable 3^o carbocation

C)



More stable

D)



Aromatic more stable

29. A) The – I effect exerted by $\overset{\oplus}{-NH_3}$ stabilizes the conjugate base $\overset{CH_2 - COOH}{\underset{\oplus NH_3}{|}}$. So acid becomes strong

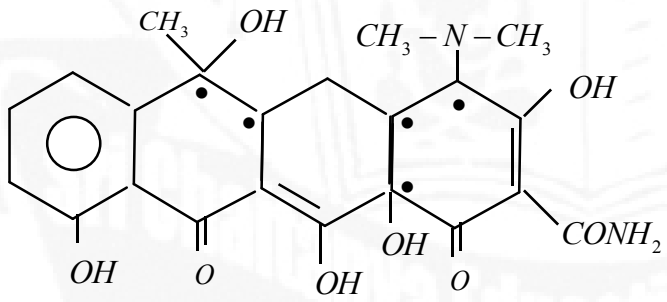
B) - $-CF_3$ group decreases the negative charge of adjacent $-CH_2$ group and it is stabilized. The three methyl groups release electrons by + I effect and destabilize carbanion.

C) +I effect exerted by the three CH_3 groups decrease the positive change formed in the conjugate acid. It becomes stable. Base becomes strong

D) I CH_3 is planar

30. Only phenol and aniline are more reactive than benzene

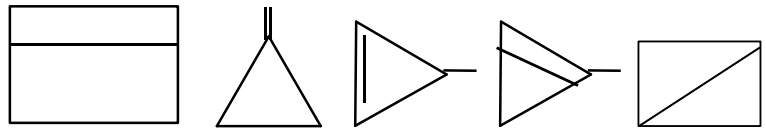
31. It has 5 chiral centres



32. benzylamine, p-toeluidine, p methoxy anline are stronger bases than aniline

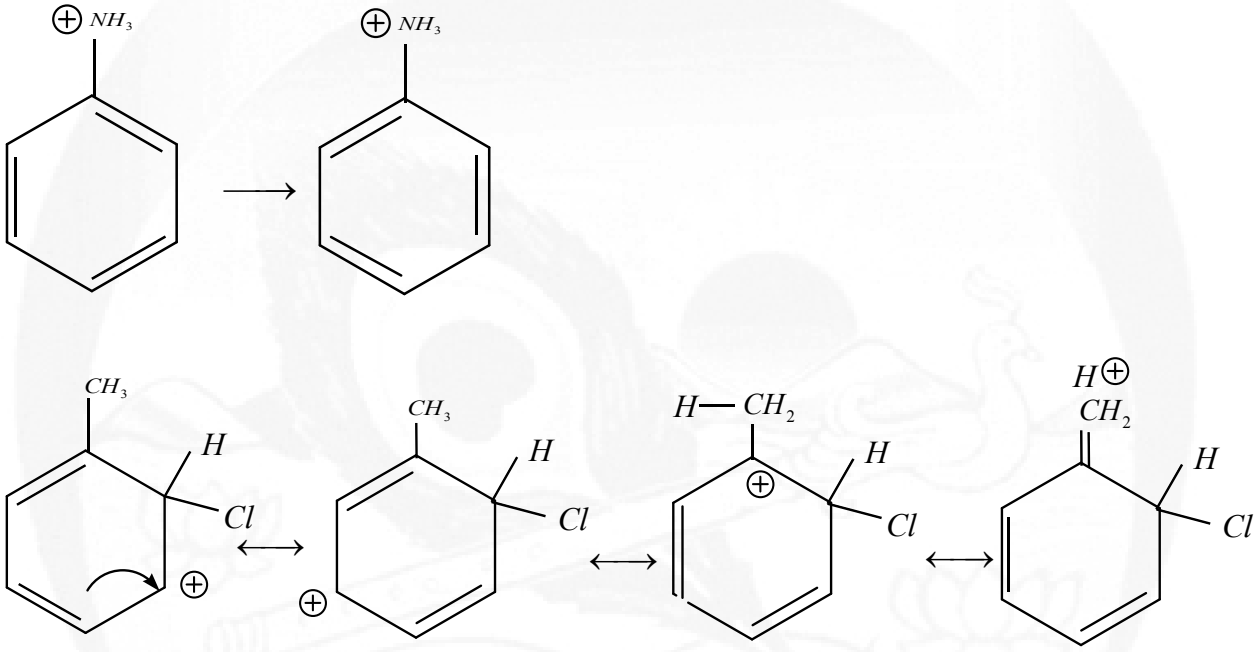
33. Formic acid, salicylic acid, phthalic acid, malefic acid one stronger than

34. $CH_3-CH_2-C\equiv CH$ $CH_3-C\equiv C-CH_3$ $CH_2=CH-CH=CH_2$



$CH_3-CH=C=CH_2$

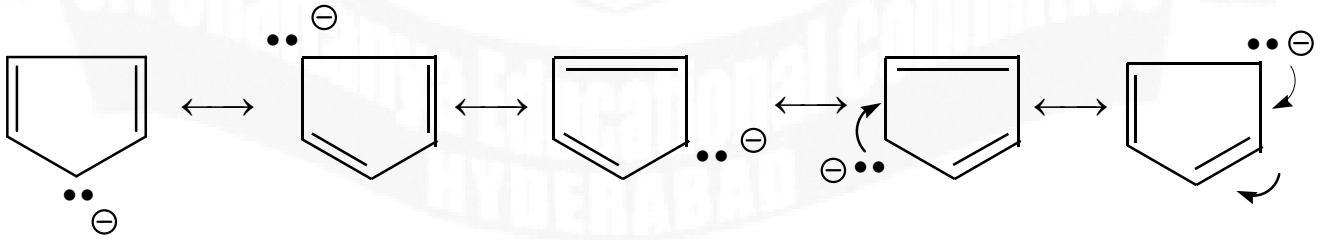
35.



36. +2 other structures

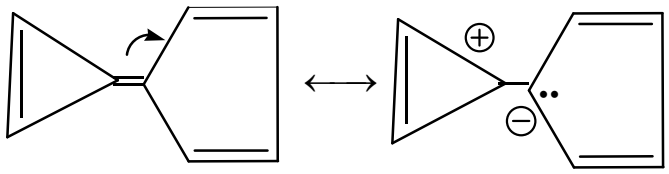
37. All are negatively changed and better nucleophiles

38.

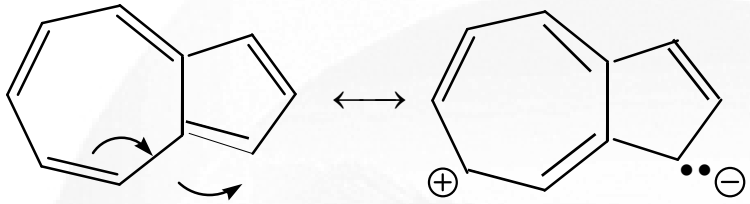


39. As it has 5 α atoms it has 5 hyper conjugative resonating structures

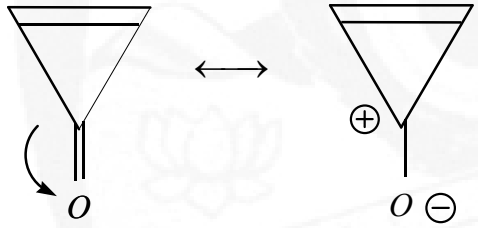
40.



Both have $(4n+2)\pi\bar{e}$ aromatic



Bothe rings have $(4n+2)\pi\bar{e}$ aromatic



$(4n+2)\pi\bar{e}$, aromatic Furan has $(4n+2)\pi$ electrons and aromatic