LIVE

GENERAL ORGANIC CHEMISTRY

for JEE-MAIN

One Shot

By SKM Sir

8:00 PM Tonight 🔥

Nishant Jindal

GOC

(*) Resonating Str. stability

(*) Carbocation Stability

(*) Aromatic / Anti Aromatic / Non Aromatic

(*) Acidic strength / Basic strength

(*) Separation of Compounds By Acid & Base method.

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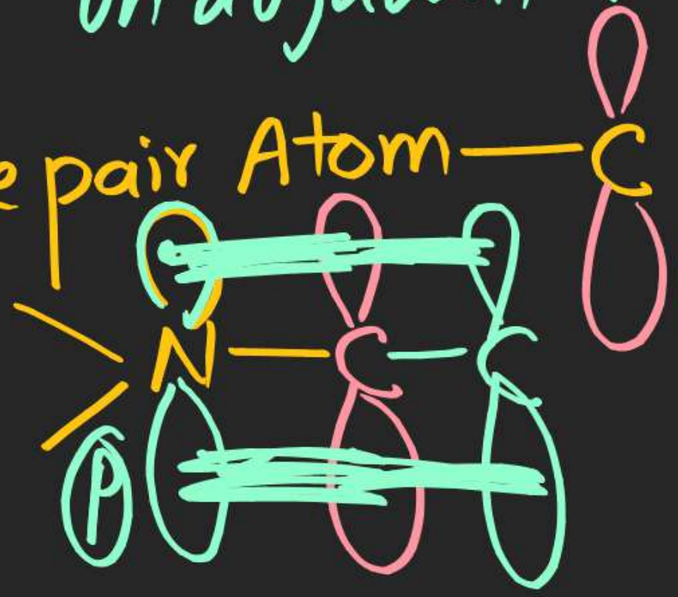
Resonance

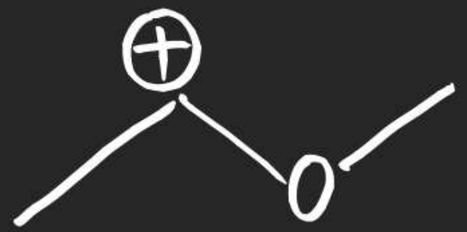
Condⁿ of Resonance:

(*) at least 3 || P abital on adjacent atom

⟹ lone pair Atom—C



at least 2 || P abital in Ions.



(#) For which valve of P, Q Compound Penta-P, 9-diene doesn't have Resonance phenomenon

(A) P=1, Q=3

(B) P=2, Q=4

(C) P=1, Q=4

(D) N.O.T

(#) Which of the following F.group doesn't contain Resonance phenomen.

(A) Carboxylic Acid

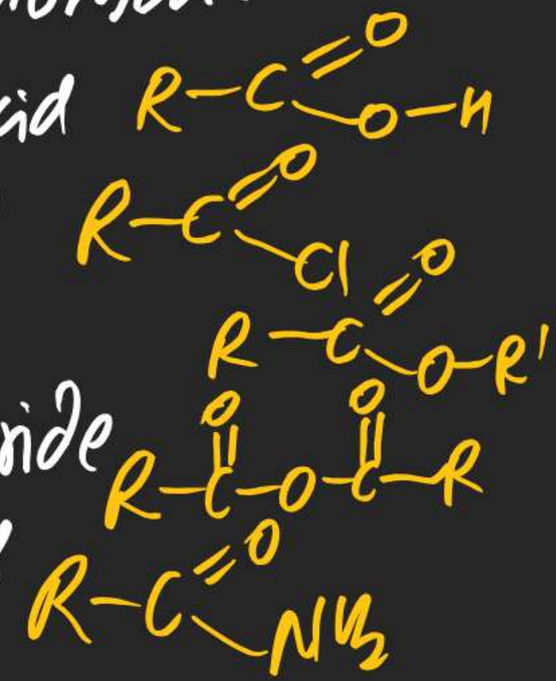
(B) Acid halide

(C) Ester

(D) Acid anhydride

(E) Acid amide

(F) N.O.T



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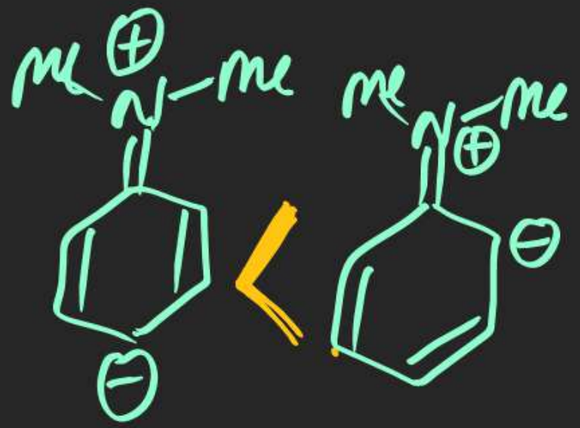
(#) Stability of RS:

(i) RS having complete octet is more stable

(ii) RS having less chge is more stable

(iii) RS having (−)ve chge on En atom & (+)ve chge on Electropositive atom are more stable.

(iv) RS having opp. chges closer & like chges away are more stable



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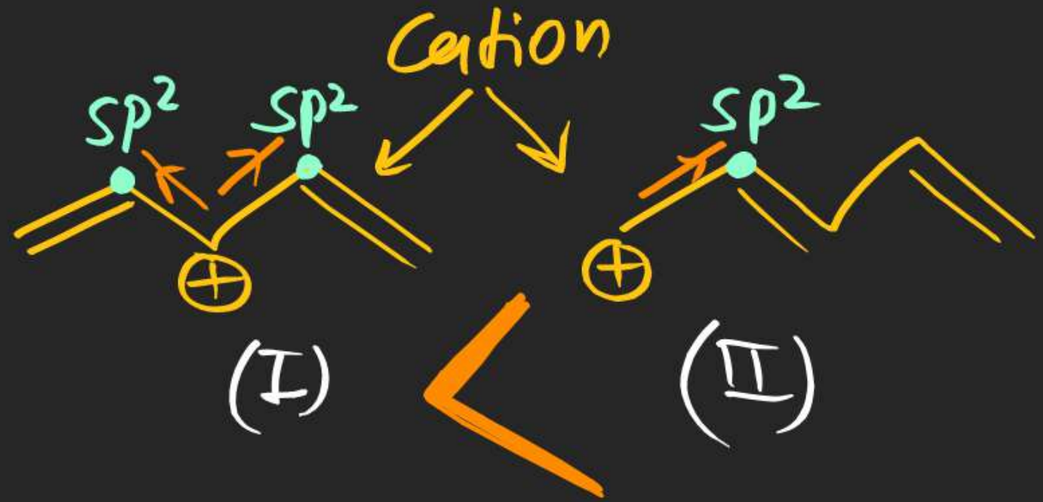
(v) RS having higher No. of Benzenoid segment is more stable.

Ex:

Extended & Cross

Two diff. Compounds



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Ex: least stable Resonating Structure.

Octet Complet | Octet Complete | Incomplete octet | Incomplete octet

most stable (Contribution Maximum)

I > II > III > IV

(least stable R. Stor)

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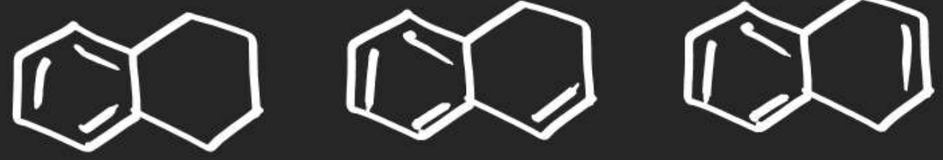
(#) Aromatic / Anti Aromatic

Aromatic

Cyclic
planer (sp^2/sp)
Conjugated

$\{(4n+2)$ peripheral π $\bar{e}$s $(n=0,1,2,3\cdots)\}$

2, 6, 10, 14, 18- - - - -



Aromatic Aromatic Aromatic

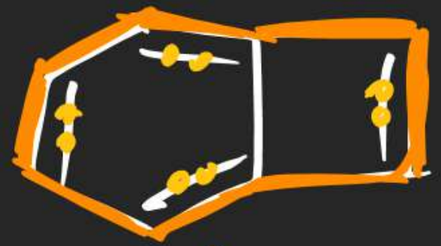
Anti Aromatic

Cyclic
planer
Conjugated

$[4n\pi$ peripheral π $\bar{e}$s$]$

4, 8, 12, 16- - - - -

(*) If cyclic segment Containg sp^3 non conjugated & Non Aromatic



Antiaromatic

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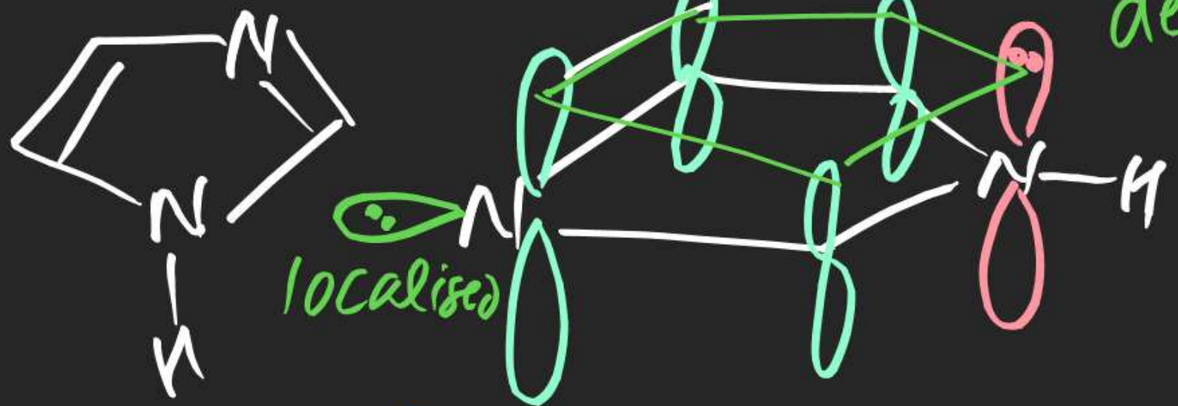
Stability order

Aromatic > Non Aromatic > Anti Aromatic

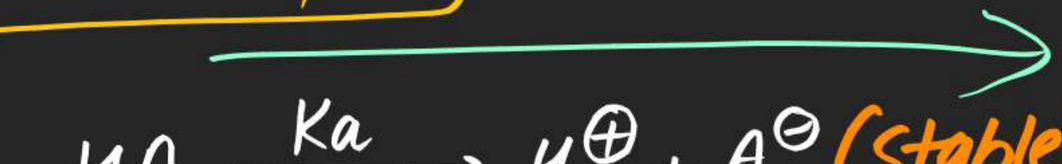
$\Rightarrow$ Cyclic Compound Containing 8 or more than 8 Carbon atoms are Either Aromatic or Non Aromatic



(Non Aromatic)

(Aromatic)
$(6\pi e^- 8)$

Acidic Strength



Acidic strength ∝ stability of $A^{\ominus}$ (C. Base)
∝ EWG

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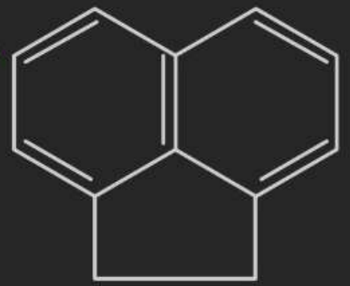
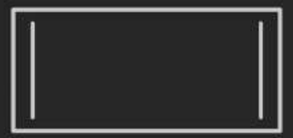
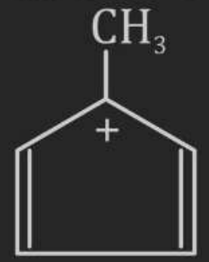
1. Which one of the following compounds is aromatic in nature? [01 Sep. 2021]

(A) 

10π
(Aromatic)

(B) 

4π
(Anti)

(C) 

4π
(Anti)

(D) 

6π
(Aromatic)

2. Given below are two statements: one is labelled as [31 Aug. 2021]

Assertion (A) and the other is labelled as Reason(R):

Assertion (A): A simple distillation can be used to separate a mixture of propanol and propanone.

Reason (R): Two liquids with a difference of more than 20° C in their boiling points can be separated by simple distillations.

In the light of the above statements, choose the most appropriate answer from the options given below:

(A) (A) is false but (R) is true.

(B) Both (A) and (R) are correct but (R) is not the correct explanation of (A).

(C) (A) is true but (R) is false.

(D) Both (A) and (R) are correct and (R) is the correct explanation of (A).

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3. Which one of the following compounds is not aromatic? [26 Aug. 2021]

(A) 

$6\pi\bar{e}$s

Aromatic

Tropolium Carbocat

(B) 

sp^2

6π

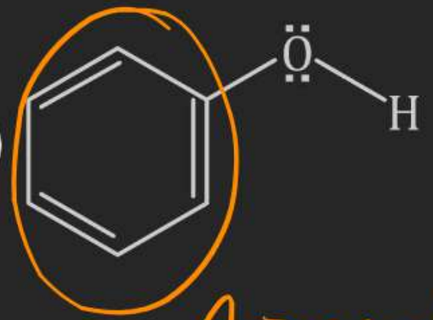
Aromatic

(C) 

$8\pi\bar{e}$s (Anti)

(Non Arom)

(Tub shape)

(D) 

Aromatic

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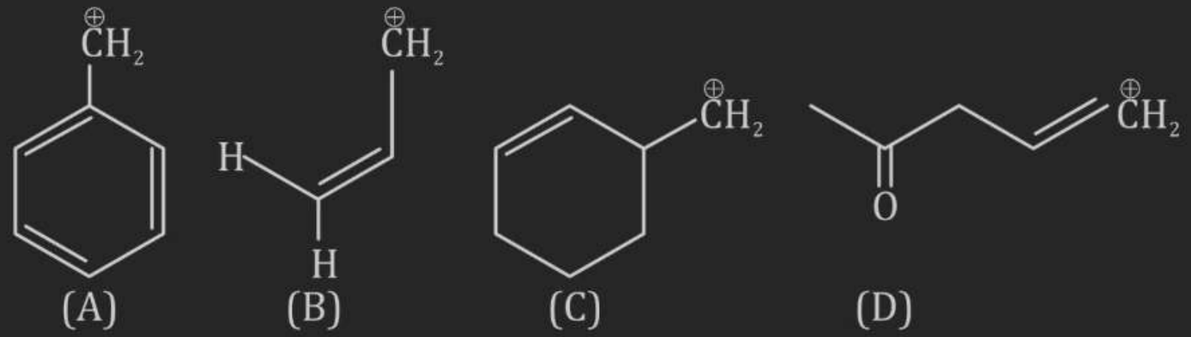
4.



Among the given species the Resonance stabilized carbocations are: [20 July 2021]

(A) (C) and (D) only

(B) (A), (B) and (D) only

(C) (A) and (B) only

(D) (A), (B) and (C) only

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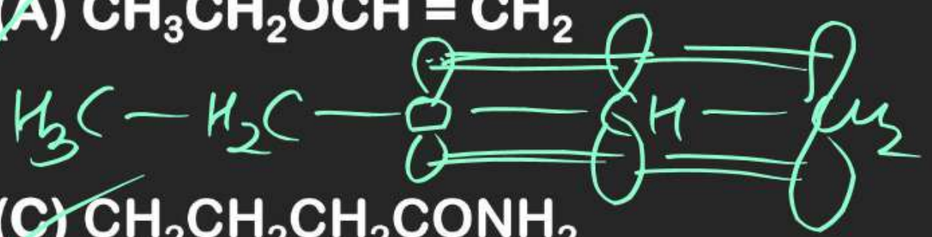
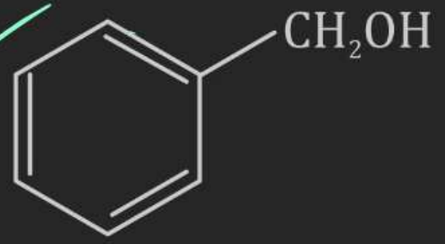
5. Which of the following compounds does not exhibit resonance? [22 July 2021]

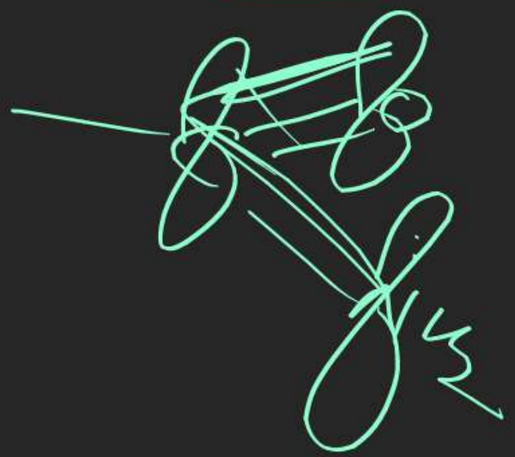
(A) $CH_3CH_2OCH = CH_2$



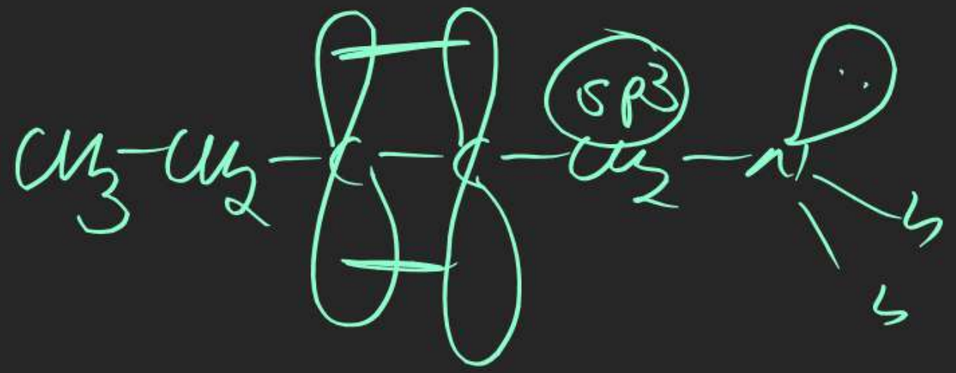
(B)



(C) $CH_2CH_2CH_2CONH_2$



(D) $CH_3CH_2CH=CHCH_2NH_2$



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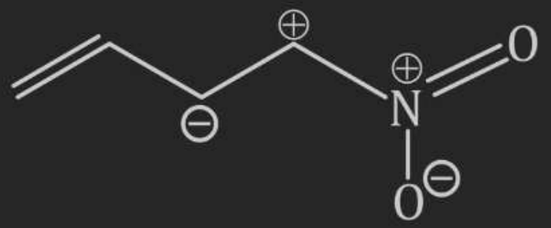
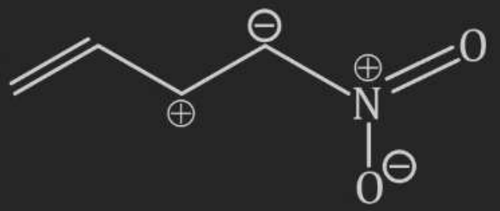
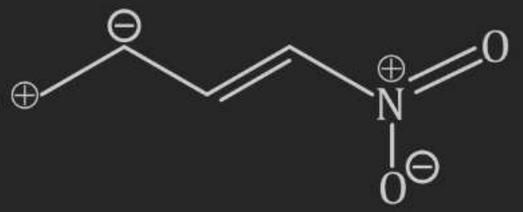
6. Which one among the following resonating structures is not correct? [25 July 2021]

(A) 

(B) 

Ans

(C) 

(D) 

नहीं ऐसा हो नहीं सकता

GOC

7. Which among the following is the strongest acid? [25 July 2021]

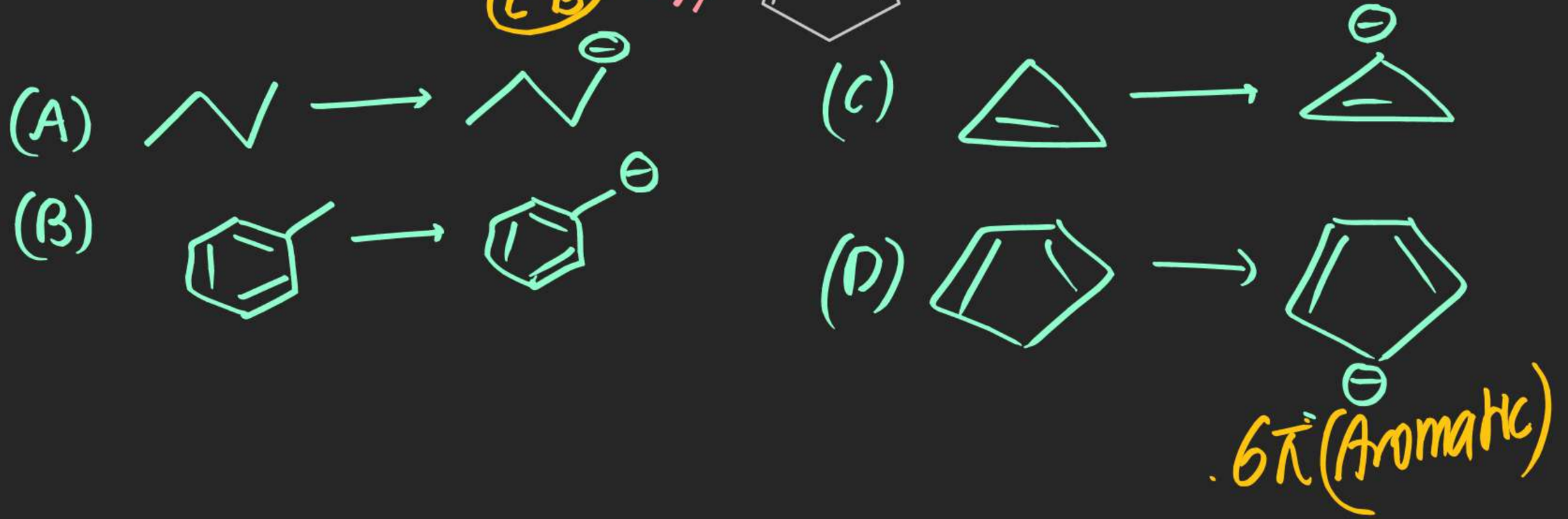
(A) $CH_3CH_2CH_2CH_3$

(B) 

(C) 

(D) 

CB



GOC

8. Given below are two statements: [27 July 2021]

Statement I: Aniline is less basic than acetamide.

Statement II: In aniline, the lone pair of electrons on nitrogen atom is delocalized over benzene ring due to resonance and hence less available to a proton.

Choose the most appropriate option;

(A) Statement I is true but statement II is false.

(B) Statement I is false but statement II is true.

(C) Both statement I and statement II are true.

(D) Both statement I and statement II are false.

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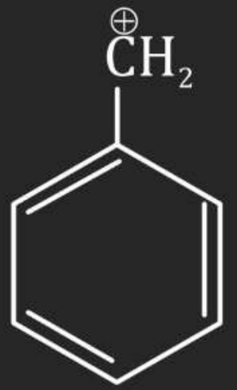
9. The correct order of stability of given carbocation is: [27 July 2021]



A

$CH_2=\overset{\oplus}{C}H$ B

$CH_3-\overset{\oplus}{C}H_2$ C

$HC\equiv\overset{\oplus}{C}$ D

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

10. Given below are two statements: [27 July 2021]

Statement I: Hyperconjugation is a permanent effect.

Statement II: Hyperconjugation in ethyl cation $\left(CH_3-\overset{+}{C}H_2\right)$ involves the overlapping of $C_{sp^2}-H_{1s}$ bond with empty 2P orbital of other carbon.

Choose the correct option:

(A) Both statement I and statement II are false.

(B) Statement I is incorrect but statement II is true.

(C) Statement I is correct but statement II is false

(D) Both statement I and statement II are true.

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11. Among the following, the aromatic compounds are : [16 Mar. 2021]

(A) 

Non Aromatic

(B) 
Aromatic

(C) 
Aromatic

(D) 
(Anti)

Choose the correct answer from the following options:

(A) (A) and (B) only

(B) (B) and (C) only

(C) (A), (B) and (D) only

(D) (A), (B) and (C) only

GOC

12. Which one of the following compounds in non-aromatic ? [24 Feb. 2021]

(A) 

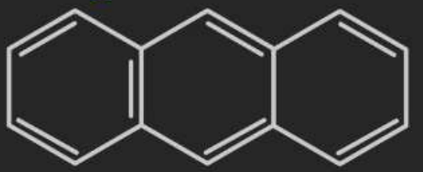
6π (Aromatic)

(B) 

sp^3 (Non)

(C) 

2π (Aromatic)

(D) 

14 π e⁻s (Aromatic)

13. Given below are two statement : [26 Feb. 2021]

Statement I : o-Nitrophenol is steam volatile due to intramolecular hydrogen bonding

Statement II : o-Nitrophenol has high melting point due to hydrogen bonding. In the light of the above

statements, choose the most appropriate answer from the options given below :

(A) Both Statement I and Statement II are false

(B) Statement I is false but Statement II is true

(C) Both Statement I and Statement II are true

(D) Statement I is true but Statement II is false

14. In $\overset{1}{\mathrm{CH_2}} = \overset{2}{\mathrm{C}} = \overset{3}{\mathrm{CH}} - \overset{4}{\mathrm{CH_3}}$

Molecule, the hybridization of carbon 1,2,3 and 4 respectively are: [26 Feb. 2021]

(A) sp^2, sp, sp^2, sp^3

(B) sp^2, sp^2, sp^2, sp^3

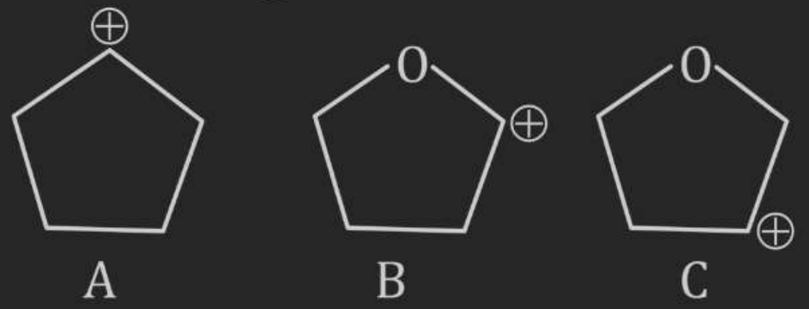
(C) sp^2, sp^3, sp^2, sp^3

(D) sp^3, sp, sp^3, sp^3

GOC

15. Arrange the following carbocations in decreasing order of stability.

[24 June2022]



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

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16. Which of the following is most stable? [27 June 2022]

(A) 

(B) 

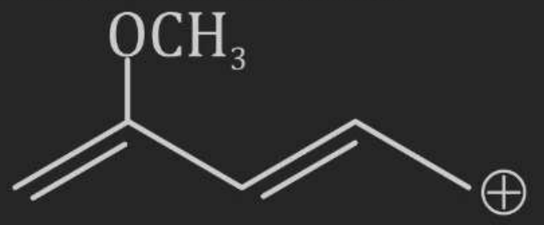
(C) 

(D) 

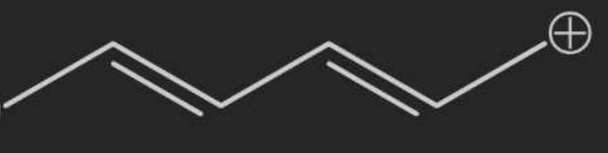
GOC

17. **Which of the following carbocations is most stable:** [29 June 2022]

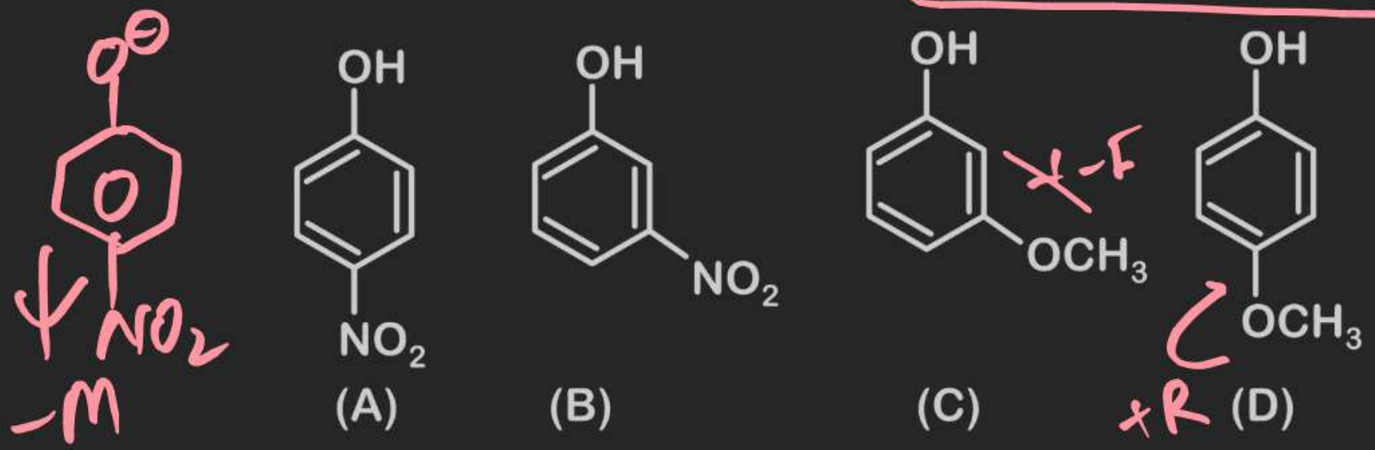
(A) 

(B) 

(C) 

(D) 

18. Arrange the following in decreasing acidic strength. [25 july 2022]



(A) A > B > C > D

(B) B > A > C > D

(C) D > C > A > B

(D) D > C > B > A

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19. Which of the following compounds is not aromatic? [26 July 2022]

(A) 

(B) 

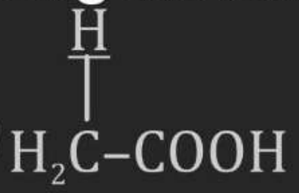
(C) 

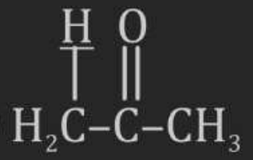
Non planer
(Non Aromatic)

(D) 

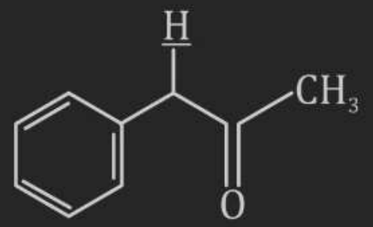
GOC

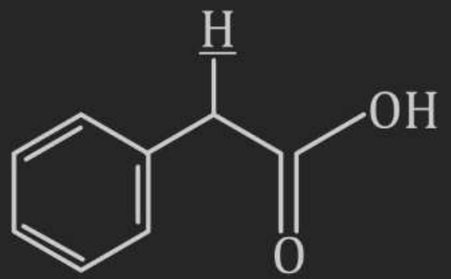
20. Among the following marked proton of which compound shows lowest pK_a value?

(A) 

(B) 

[26 July 2022]

(C) 

(D) 

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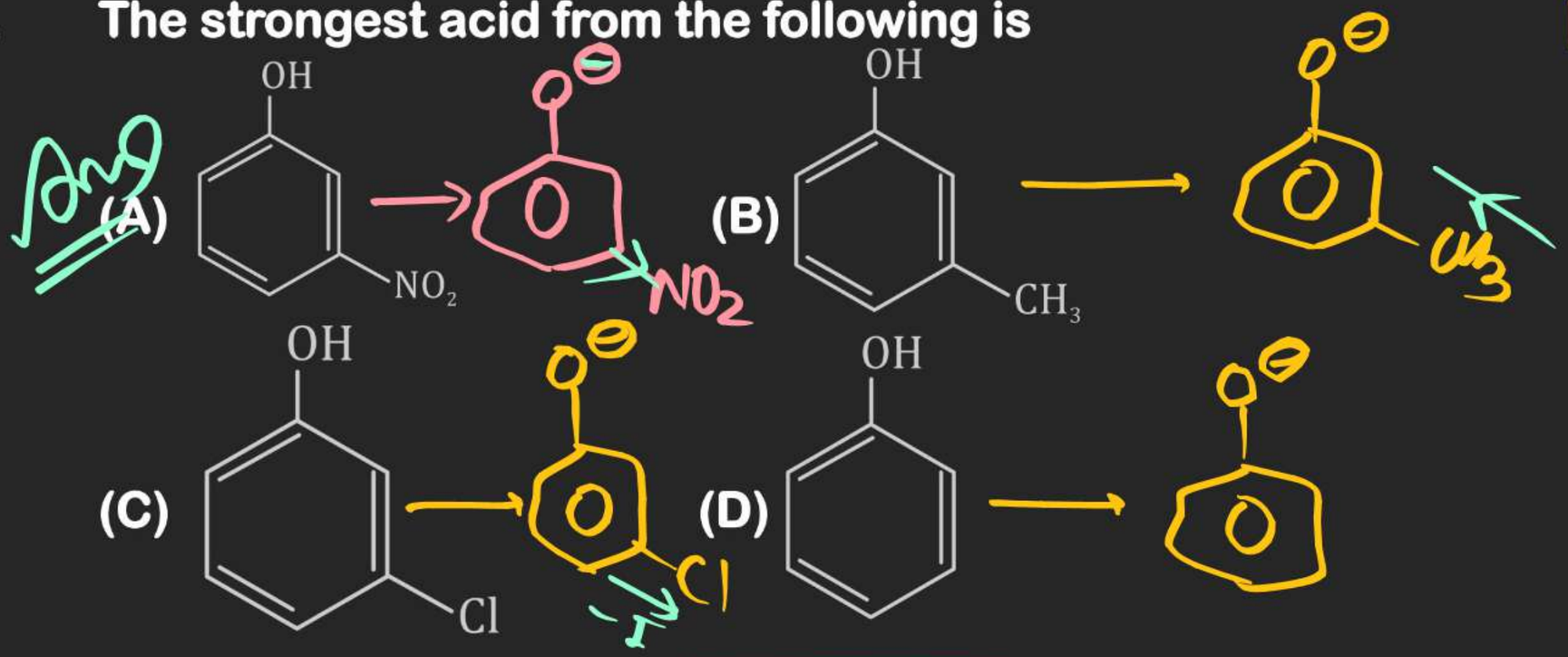
21. The strongest acid from the following is [06 Apr2023]



A > C > D > B

22. The descending order of acidity for the following carboxylic acid is- [08 Apr2023]

(A) CH_3COOH (B) $F_3C–COOH$ (C)$ClCH_2–COOH$

(D) $FCH_2–COOH$ (E) $BrCH_2–COOH$

Choose the correct answer from the options given below:

(A) B > C > D > E > A (B) E > D> B > A > C

(C) B > D > C > E > A (D) D > B > A > E > C

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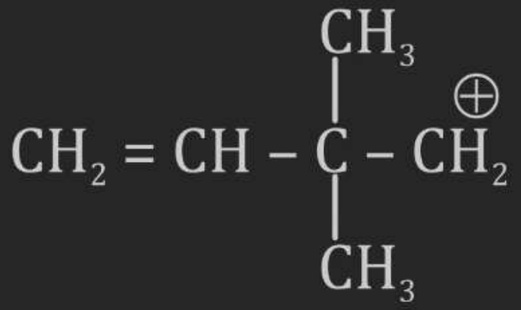
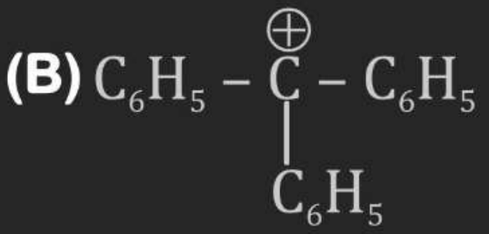
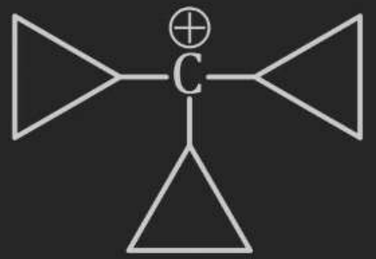
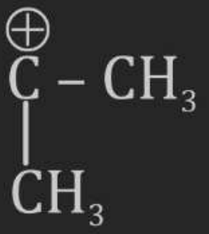
23. The decreasing order of hydride affinity for following carbocations is: [10 Apr2023]

(A) 

(B) 

(C) 

(D) 

(A) (c) < (b) < (d) < (a)

(B) (b) < (d) < (c) < (a)

(C) (a) < (d) < (b) < (c)

(D) (c) < (a) < (d) < (b)

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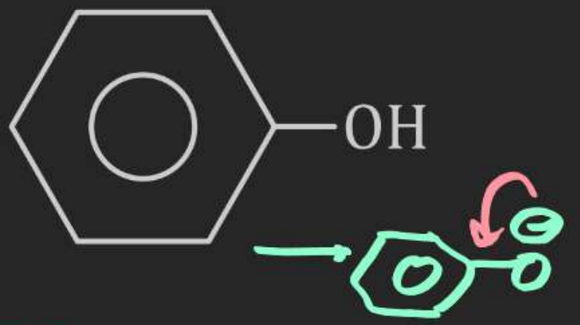
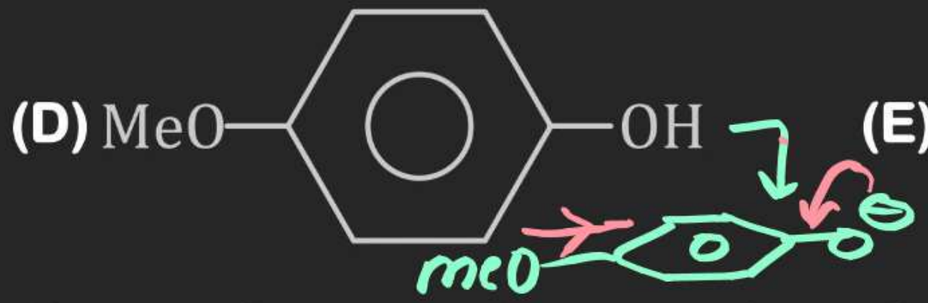
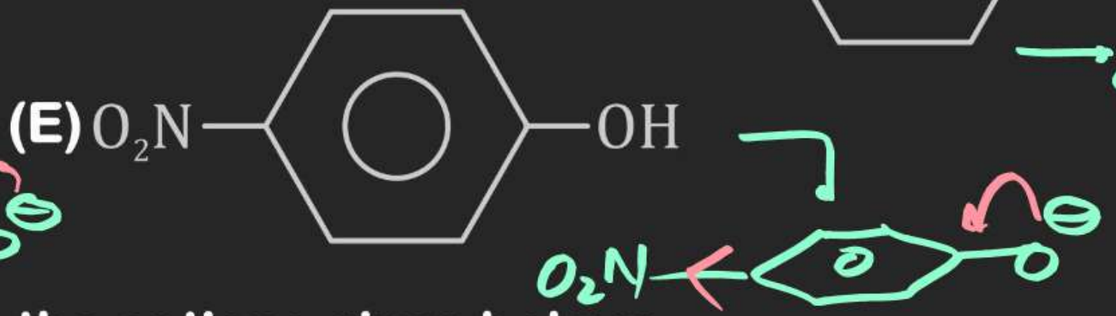
24. The correct order for acidity of the following hydroxyl compound is [10 Apr2023]

(A) CH_3OH 

(B) $(CH_3)_3COH$ 

(C) 

(D) 

(E) 

Choose the correct answer from the options given below:

(A) C > E > D > B > A

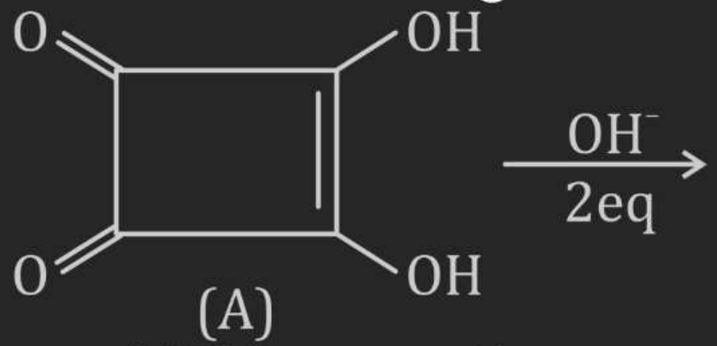
(B) E > D > C > B > A

(C) D > E > C > A > B

(D) E > C > D > A > B

GOC

25. Correct statements for the given reaction are: [12 Apr2023]



(A)

(A) Compound 'B' is aromatic

(B) The completion of above reaction is very slow

(C) 'A' shows tautomerism

(D) The bond lengths of in compound are found to be same Choose the correct answer from the options given below.

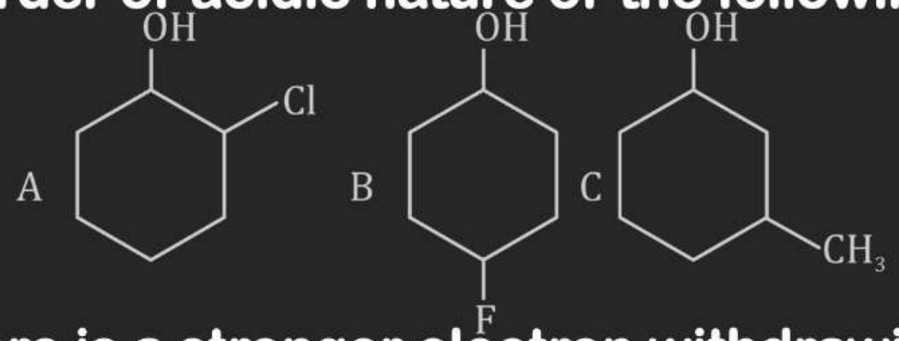
(A) B, C and D only (B) A, B and C only (C) A, C and D only (D) A, B and D only

GOC

26. Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Order of acidic nature of the following compounds is A > B > C.

[13 Apr2023]



Reason R: Fluoro is a stronger electron withdrawing group than Chloro group.

In the light of the above statements, choose the correct answer from the options given below :

(A) A is false but R is true

(B) Both A and R are correct and R is the correct explanation of A

(C) A is true but R is false

(D) Both A and R are correct but R is NOT the correct explanation of A

27. Given below are two statements: [13 Apr2023]

Statement I: Tropolone is an aromatic compound and has 8p electrons.

Statement II: π electrons of > C = O group in tropolone is involved in aromaticity. In the light of the above statements choose the correct answer from the options given below:

(A) Statement I is true but Statement II is false

(B) Statement I is false but Statement II is true

(C) Both Statement I and Statement II are false

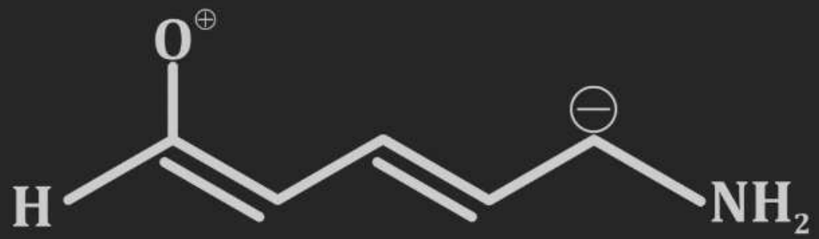
(D) Both Statement I and Statement II are true

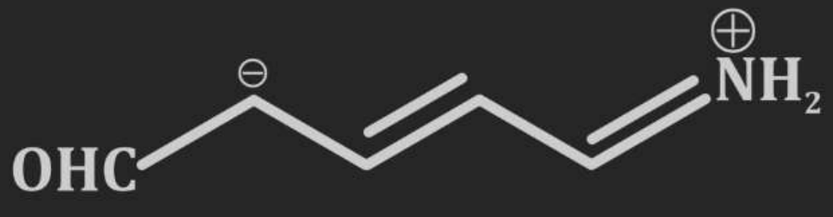
GOC

28. Increasing order of stability of the resonance structure is: [24 Jan 2023]

(A) 

(B) 

(C) 

(D) 

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

GOC

29. Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R. [24 Jan 2023]

Assertion A: Benzene is more stable than hypothetical cyclohexatriene.

Reason R: The delocalized π electron cloud is attracted more strongly by nuclei of carbon atoms.

In the light of the above statements, choose the correct answer from the options given below:

(A) A is true but R is false.

(B) A is false but R is true.

(C) Both A and R are correct and R is the correct explanation of A.

(D) Both A and R are correct but R is NOT the correct explanation of A.

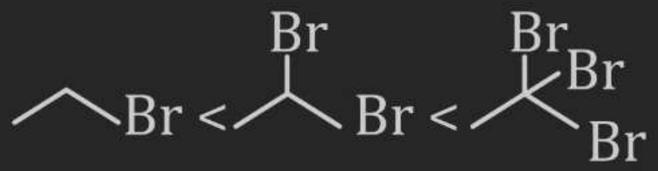
GOC

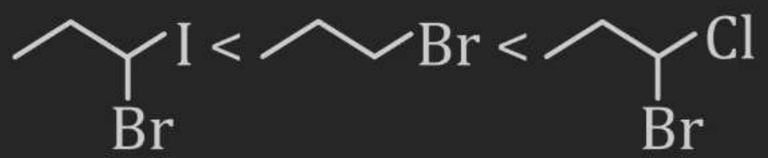
30. Identify the correct order for the given property for following compounds

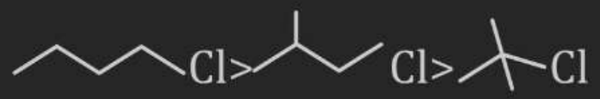
[29 Jan 2023]

(A) Boiling Point: 

(B) Density: 

(C) Boiling Point: 

(D) Density: 

(E) Boiling Point: 

Choose the correct answer from the option given below:-

(A) (B), (C) and (D) only

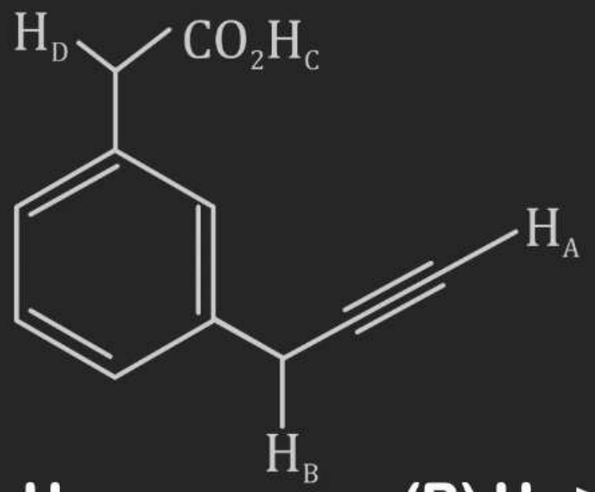
(B) (A), (C) and (E) only

(C) (A), (C) and (D) only

(D) (A), (B) and (E) only

GOC

31. What is the correct order of acidity of the protons marked A–D in the given compounds? [30 Jan 2023]



(A) $H_C > H_D > H_B > H_A$

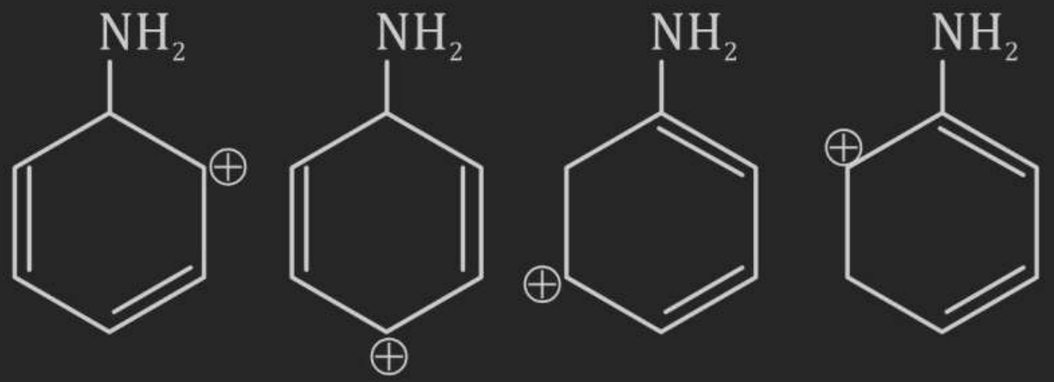
(B) $H_C > H_D > H_A > H_B$

(C) $H_D > H_C > H_B > H_A$

(D) $H_C > H_A > H_D > H_B$

GOC

32. The most stable carbocation for the following is [30 Jan 2023]

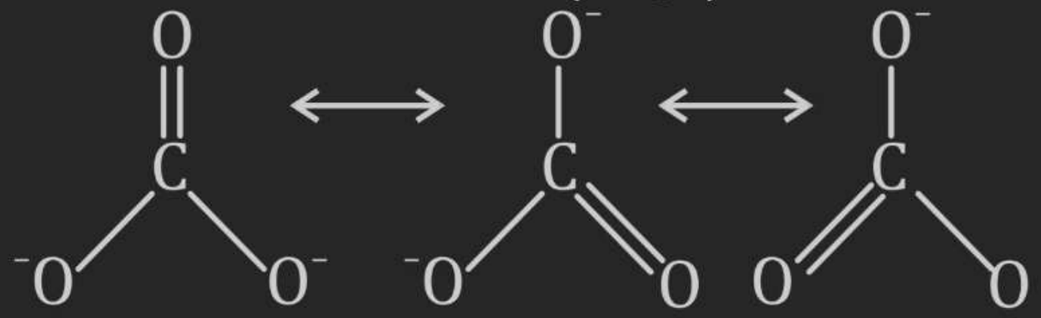


(a) (b) (c) (d)

(A) c (B) d (C) b (D) a

GOC

33. Resonance in carbonate ion (CO_3^{2-}) is [24 Jan 2023]



Which of the following is true?

(A) it is possible to identify each structure individually by some physical or chemical method.

(B) All these structures are in dynamic equilibrium with each other.

(C) Each structure exists for equal amount of time.

(D) CO_3^{2-} has a single structure i.e., resonance hybrid of the above three structures.