# JEE Mains 2019 Chapter wise Question Bank

## General Organic Chemistry - Questions

**Q1**

The correct decreasing order for acid strength is:

(1) $NO_2CH_2COOH > FCH_2COOH > CNCH_2COOH > ClCH_2COOH$

(2) $FCH_2COOH > NCCH_2COOH > NO_2CH_2COOH > ClCH_2COOH$

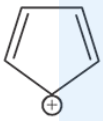
(3) $CNCH_2COOH > O_2NCH_2COOH > FCH_2COOH > ClCH_2COOH$

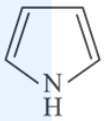
(4) $NO_2CH_2COOH > NCCH_2COOH > FCH_2COOH > ClCH_2COOH$

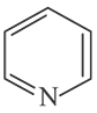
**9 Jan Morning**

**Q2**

Which of the following compounds is not aromatic?

(1) 

(2) 

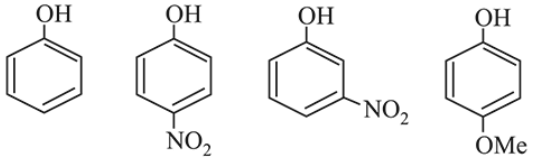
(3) 

(4) 

**9 Jan Evening**

**Q3**

The increasing order of the p$K_a$ values of the following compounds is:



A B C D

(1) C < B < A < D

(2) B < C < D < A

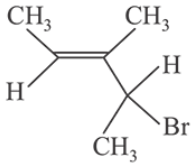
(3) D < A < C < B

(4) B < C < A < D

**10 Jan Morning**

**Q4**

What is the IUPAC name of the following compound?



(1) 3-Bromo-1, 2-dimethylbut-1-ene

(2) 3-Bromo-3-methyl-1, 2-dimethylprop-1-ene

(3) 2-Bromo-3-methylpent-3-ene

(4) 4-Bromo-3-methylpent-2-ene

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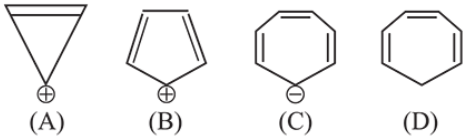
**Q5**

Which compound (s) out of the following is/are not aromatic?



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

(1) (B), (C) and (D) (2) (C) and (D)

(3) (B) (4) (A) and (C)

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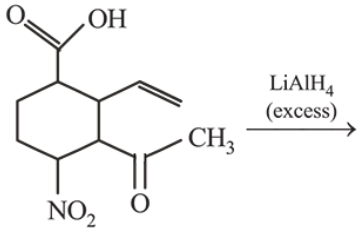
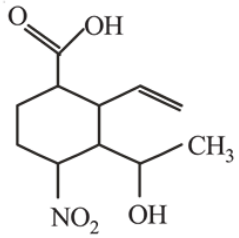
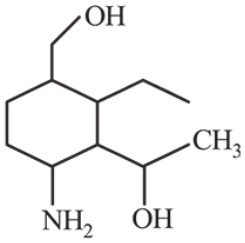
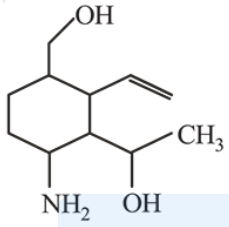
**Q6**

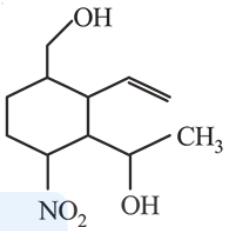
The major product obtained in the following reaction is:




(1) 


(2) 


(3) 


(4) 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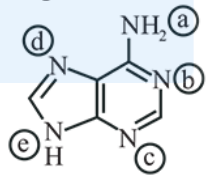
**Q7**

In the following compound,




the favourable site/s for protonation is/are :

(1) (a) and (e) (2) (b), (c) and (d)
(3) (a) and (d) (4) (a)

**11 Jan Evening**

**Q8**

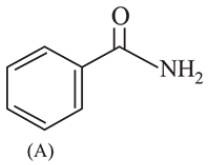
The correct order for acid strength of compounds $CH \equiv CH$, $CH_3-C \equiv CH$ and $CH_2 = CH_2$ is as follows:

(1) $CH \equiv CH > CH_2 = CH_2 > CH_3 - C \equiv CH$
(2) $CH_3 - C \equiv CH > CH \equiv CH > CH_2 = CH_2$
(3) $CH_3 - C \equiv CH > CH_2 = CH_2 > HC \equiv CH$
(4) $HC \equiv CH > CH_3 - C \equiv CH > CH_2 = CH_2$

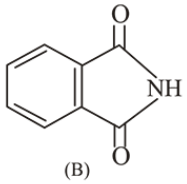
**12 Jan Morning**

**Q9**

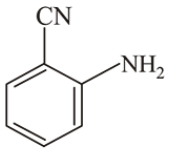
The increasing order of reactivity of the following compound towards reaction with alkyl halides directly is:



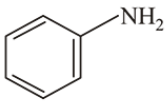

(A)




(B)




(C)



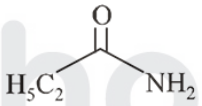

(D)

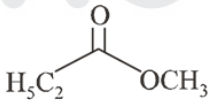
(1) (B) < (A) < (C) < (D) (2) (A) < (B) < (C) < (D)
(3) (B) < (A) < (D) < (C) (4) (A) < (C) < (D) < (B)

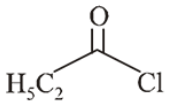
**12 Jan Morning**

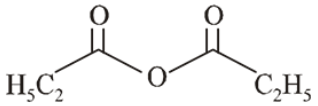
**Q10**

The increasing order of the reactivity of the following with $LiAlH_4$ is :

(A) 


(B) 


(C) 

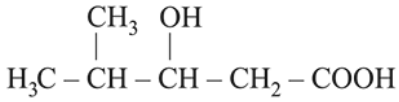

(D) 


(1) (B) < (A) < (C) < (D) (2) (B) < (A) < (D) < (C)
(3) (A) < (B) < (D) < (C) (4) (A) < (B) < (C) < (D)

**12 Jan Evening**

**Q11**

The IUPAC name of the following compound is :



(1) 4, 4-Dimethyl-3-hydroxybutanoic acid

(2) 2-Methyl-3-hydroxypentan-5-oic acid

(3) 3-Hydroxy-4-methylpentanoic acid

(4) 4-Methyl-3-hydroxypentanoic acid

**8 April Morning**

**Q12**

Which of the following compounds will show the maximum 'enol' content?

(1) $CH_3COCH_2COOC_2H_5$ (2) $CH_3COCH_2COCH_3$

(3) $CH_3COCH_3$ (4) $CH_3COCH_2CONH_2$

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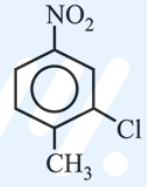
**Q13**

The correct IUPAC name of the following compound is:



(1) 5-chloro-4-methyl-1-nitrobenzene

(2) 2-chloro-1-methyl-4-nitrobenzene

(3) 3-chloro-4-methyl-1-nitrobenzene

(4) 2-methyl-5-nitro-1-chlorobenzene

**9 April Morning**

**Q14**

The increasing order of nucleophilicity of the following nucleophiles is :

(1) $CH_2CO_2^-$ (2) $H_2O$

(3) $CH_3SO_3^-$ (4) $\bar{O}H$

(1) (a) < (d) < (c) < (b) (2) (b) < (c) < (d) < (a)

(3) (d) < (a) < (c) < (b) (4) (b) < (c) < (a) < (d)

**10 April Evening**

**Q15**

Which of these factors does not govern the stability of a conformation in acyclic compounds ?

(1) Steric interactions

(2) Torsional strain

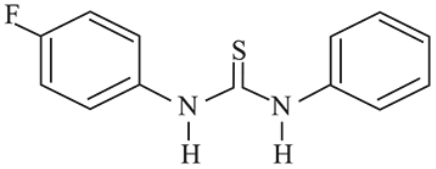
(3) Electrostatic forces of interaction

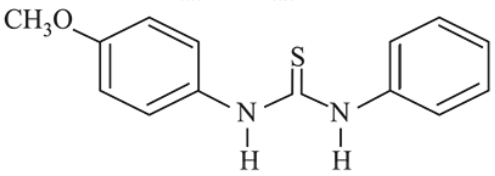
(4) Angle strain

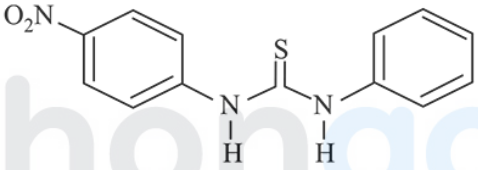
**10 April Evening**

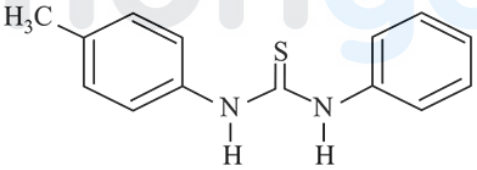
**Q16**

The increasing order of the $pK_b$ of the following compounds is :

(A) 

(B) 

(C) 

(D) 

(1) (A) < (C) < (D) < (B) (2) (C) < (A) < (D) < (B)

(3) (B) < (D) < (A) < (C) (4) (B) < (D) < (C) < (A)

**12 April Morning**

**Q17**

The decreasing order of electrical conductivity of the following aqueous solutions is :

0.1 M Formic acid (A),

0.1 M Acetic acid (B),

0.1 M Benzoic acid (C).

(1) A > C > B (2) C > B > A

(3) A > B > C (4) C > A > B

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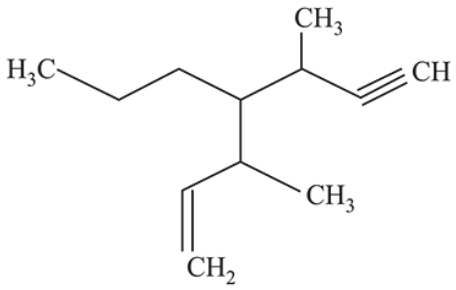
**Q18**

The IUPAC name for the following compound is :




(1) 3-methyl-4-(3-methylprop-l-enyl)-l-heptyne
(2) 3,5-dimethyl-4-propylhept-6-en-l-yne
(3) 3-methyl-4-(1-methylprop-2-ynyl)-l-heptene
(4) 3,5-dimethyl-4-propylhept-1-en-6-yne

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# JEE Mains 2019 Chapter wise Question Bank

## General Organic Chemistry - Answers

**Q1**

**(4)** The acidic strength of a compound or an acid depends on the inductive effect (–I). Higher the (–I) effect of a substituent higher will be acidic strength. Now, the decreasing order of (–I) effect of the given substituents is $NO_2 > CN > F > Cl$.

$\therefore$ The correct decreasing order of acidic strength amongst the given carboxylic acids is:

$O_2NCH_2COOH > NCCH_2COOH > FCH_2COOH > ClCH_2COOH$

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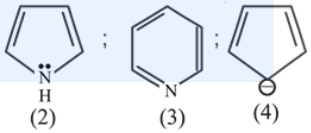
**Q2**

**(1)** Compounds (2), (3) and (4) are containing $6\pi e^-$ in complete conjugation and are aromatic.



(2) (3) (4)

Compound (1) is anti-aromatic as it has $4\pi e^-$ in complete conjugation and doesn't obey Hückel rule.

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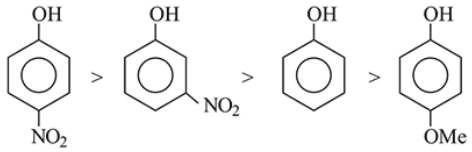
**Q3**

**(4)** Electron withdrawing substituents increase the acidic strength while electron releasing groups decrease the acidic strength.

$\therefore$ Acidic strength $\propto K_a \propto \dfrac{1}{pK_a}$



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

$pK_a$ : B < C < A < D

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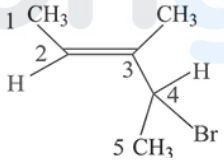
**Q4**

**(4)** IUPAC name: 4-Bromo-3-methylpent-2-ene



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**Q5**

**(1)**  is aromatic ; $(4 \times 0 + 2) = 2\ \pi e^-$ in conjugation

 and  are antiaromatic

$4\pi e^-$ $8\pi e^-$

$(4 \times 1)\ \pi e^-$ $(4 \times 2)\ \pi e^-$

 is non aromatic due to the presence of $sp^3$ carbon.

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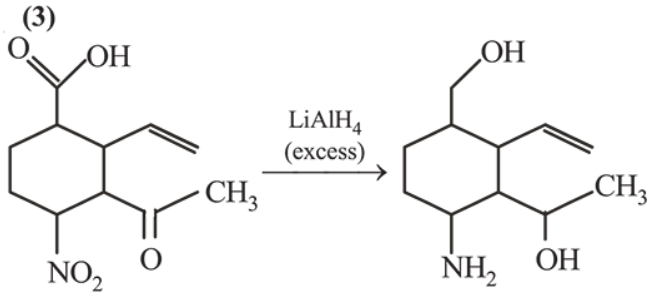
**Q6**

**(3)**




C = C remains unaffected by $LiAlH_4$.

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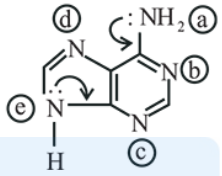
**Q7**

**(2)** (b), (c) and (d) are the favourable sites for protonation because these are localilsed lone pair electron.

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**Q8**

**(4)** Order of acidic strength is

$CH{\equiv}CH > CH_3{-}C{\equiv}CH > CH_2{=}CH_2$

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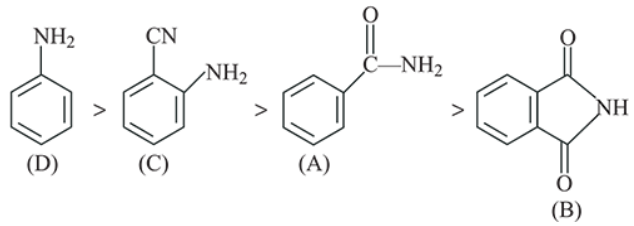
**Q9**

**(1)**

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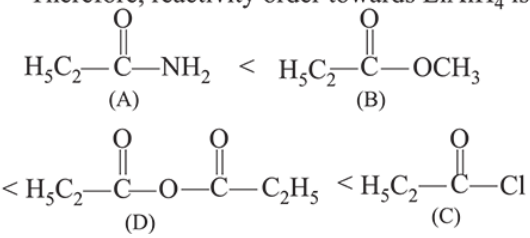
**Q10**

**(3)** The reactivity order of carboxylic acid derivatives depends on the electrophilicity of the carbonyl carbon and Leaving ability of the four groups is $-Cl > -COOC_2H_5 > -OCH_3 > -NH_2$.

Therefore, reactivity order towards $LiAlH_4$ is

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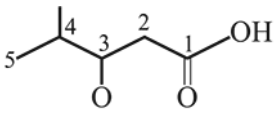
**Q11**

**(3)**




3-Hydroxy-4-methyl pentanoic acid

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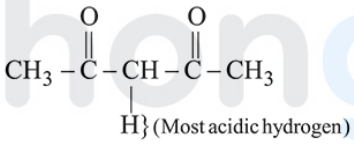
**Q12**

**(2)** Enol content $\propto$ Acidity of active methylene hydrogens.




Maximum enol content

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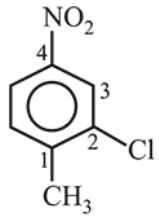
**Q13**

**(2)**




2-Chloro-1-methyl-4-nitrobenzene

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**Q14**

**(4)** (i) Negatively charge molecule is more nucleophilic than neutral molecule.

(ii) Concentrated negatively charged molecule is more nucleophilic than delocalised negatively charge molecule.

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**Q15**

**(4)** Angle strain is present in cyclic compounds.

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**Q16**

**(3)** Electron withdrawing group attached to benzene ring will reduce the basic strength and increase $pK_b$, while electron donating group decreases $pK_b$.
Correct increasing order of $pK_b$.

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

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**Q17**

**(1)** Order of acidic strength is
$HCOOH > C_6H_5COOH > CH_3COOH$
More the acidic strength more will be the dissociation of acid into ions and more will be the conductivity.
Thus, order of conductivity will be,
$HCOOH > C_6H_5COOH > CH_3COOH$
(A) > (C) > (B)

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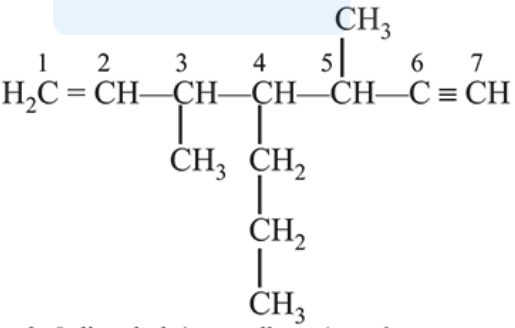
**Q18**

**(4)**



3, 5-dimethyl-4-propylhept-1-en-6-yne

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