

## DPP No. # A1 (JEE-MAIN)

Total Marks: 60

Max. Time: 33 min.

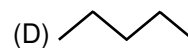
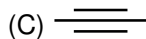
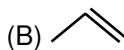
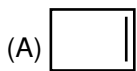
Single choice Objective ('-1' negative marking) Q.1 to Q.12

(3 marks, 2 min.) [36, 24]

Numerical Value Questions ('0' negative marking) Q.13 to Q.15

(3 marks, 3 min.) [09, 09]

1. Which of the following is saturated hydrocarbon?



2. Carbon has strong tendency to show catenation due to :

(A) Its tetravalency

(B) small size

(C) Its high C-C bond energy

(D) All of these

3. Which of the following is the empirical formula of  $C_6H_6$ ?

(A) CH

(B)  $C_2H_2$ (C)  $C_6H_6$ 

(D) none of these

4. and are :

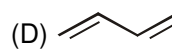
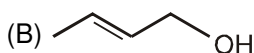
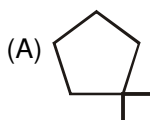
(A) Identical

(B) Homologous

(C) Alkane

(D) Saturated hydrocarbon

5. Which of the following is unsaturated hydrocarbon?

6. Which of the following is third member of  $C_nH_{2n-2}$  homologous series?(A)  $C_2H_2$ (B)  $C_3H_4$ (C)  $C_4H_6$ (D)  $C_4H_8$ 

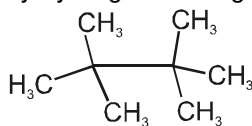
7. Which of the following is molecular formula of ?

(A)  $C_7H_{14}$ (B)  $C_7H_{12}$ (C)  $C_7H_{10}$ (D)  $C_7H_8$ 8. How many  $\pi$  and  $\sigma$  bond are present in  $CH_2=CH-CH_2-C\equiv CH$ (1) 10  $\sigma$ , 3  $\pi$ (2) 8  $\sigma$ , 3  $\pi$ (3) 3  $\sigma$ , 10  $\pi$ (4) 12  $\sigma$ , 3  $\pi$ 9. How many  $\sigma$  and  $\pi$ -bonds are there in tetracyanoethylene  $(CN)_2C=C(CN)_2$  molecule.(1) 9  $\sigma$ , 9  $\pi$ (2) 9  $\sigma$ , 7  $\pi$ (3) 5  $\sigma$ , 9  $\pi$ (4) 5  $\sigma$ , 7  $\pi$ 

10. Which of the following alkanes contain primary, secondary, tertiary and quaternary carbon atoms together?

(1)  $(CH_3)_3CH$ (2)  $(C_2H_5)_3CH$ (3)  $(CH_3)_3CCH_2CH(CH_3)_2$ (4)  $(CH_3)_4C$ 11. Ketene  $CH_2=C=O$  has(A) Only  $sp^2$  carbon atom(B) Only  $sp$  carbon atom(C)  $sp^2$  and  $sp$  carbon atoms(D)  $sp^3$ ,  $sp^2$  and  $sp$  carbon atoms

12. Number of primary hydrogen is the given compound are



(A) 10

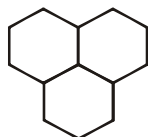
(B) 18

(C) 14

(D) 16

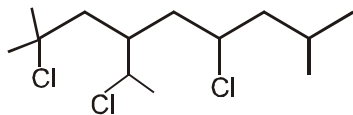
13. Total number of bonds in  $HC\equiv C-C\equiv CH$ ?

14.



How many hydrogen atoms are present in the given structure?

15. Number of secondary halogen in the given compound are



### DPP No. # A2 (JEE-ADVANCED)

Total Marks: 42

Max. Time: 26 min.

Multiple choice objective ('-1' negative marking) Q.1 to Q.7

(4 marks, 2 min.)

[28, 14]

Numerical Value Questions ('0' negative marking) Q.8 to Q.9

(3 marks, 3 min.)

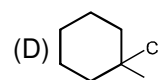
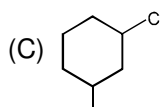
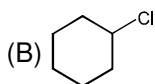
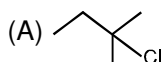
[06, 06]

Match the Following (no negative marking) Q.10

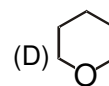
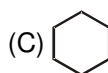
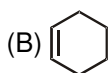
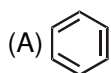
(8 marks, 6 min.)

[08, 06]

1. Which of following is/are 3° chloride:



2. The alicyclic compound/s is / are :



3. The correct options for a homologous series

(A) All members have same general formula

(B) All members have same chemical properties

(C) All members have same physical properties

(D) All members have same functional groups

4. What is correct about and ?

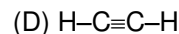
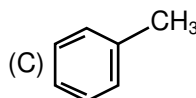
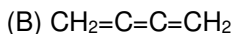
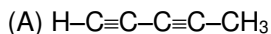
(A) both have same empirical formula

(B) both have same general formula

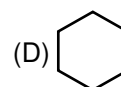
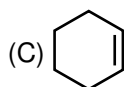
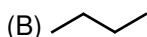
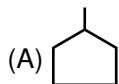
(C) both have same molecular formula

(D) both are homologous

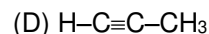
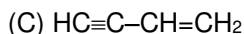
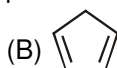
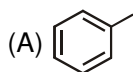
5. How many of the following show general formula  $C_nH_{2n-6}$ ?



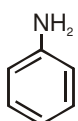
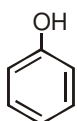
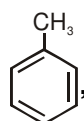
6. Which of the following is/are alicyclic hydrocarbon.



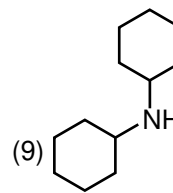
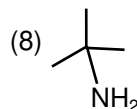
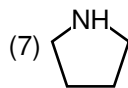
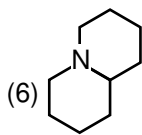
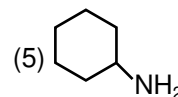
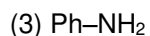
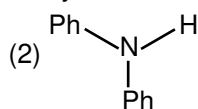
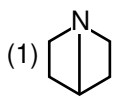
7. Which molecules have  $sp^3$  carbon atom :



8. In the given compounds how many are unsaturated hydrocarbon?



9. How many amines are tertiary amines?



10. Match the following:

	Column-I (Compounds)		Column-II (Class of compounds)
(A)		(p)	Saturated compound
(B)		(q)	Heterocyclic compound
(C)		(r)	Unsaturated compound
(D)		(s)	Hydrocarbon

### DPP No. # A3 (JEE-MAIN)

Total Marks: 42

Max. Time : 31 min.

Single choice Objective ('-1' negative marking) Q.1 to Q.11

(3 marks, 2 min.)

[33, 22]

Numerical Value Questions ('0' negative marking) Q.12 to Q.14

(3 marks, 3 min.)

[09, 09]

1. In the organic compound  $\text{CH}_2 = \overset{1}{\text{CH}} - \overset{2}{\text{CH}_2} - \overset{3}{\text{CH}_2} - \overset{4}{\text{CH}_2} - \overset{5}{\text{CH}} = \overset{6}{\text{CH}_2}$ , the pair of hybridised orbitals involved in the formation of  $\text{C}_2 - \text{C}_3$  bond is :

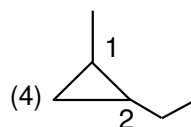
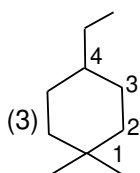
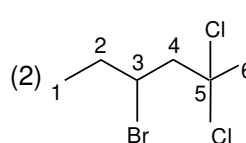
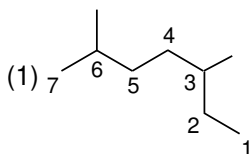
(A)  $\text{sp} - \text{sp}^2$

(B)  $\text{sp} - \text{sp}^3$

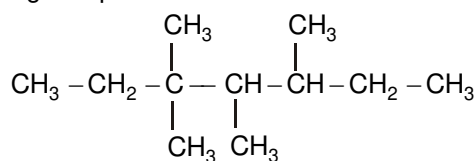
(C)  $\text{sp}^2 - \text{sp}^3$

(D)  $\text{sp}^3 - \text{sp}^3$

2. Which of the following has correct numbering :



3. In following compound-



The correct lowest set of locants are :

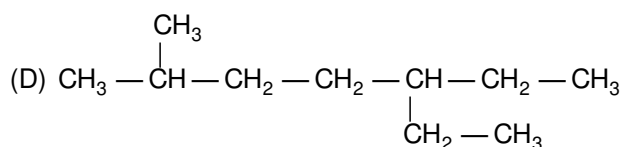
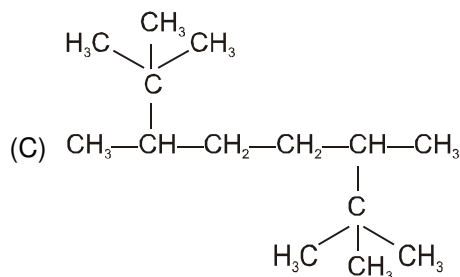
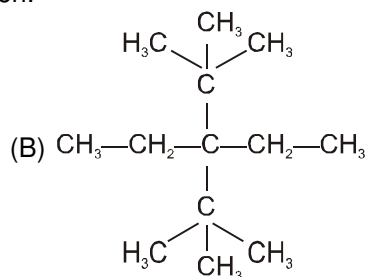
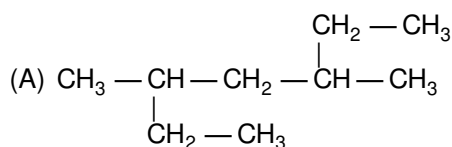
(A) 3,3,4,5

(B) 3,4,5,5

(C) 4,5,3,3

(D) 5,5,4,3

4. Which of the following has longest chain of carbon:



5. Which of the following is 3<sup>o</sup> chloride?

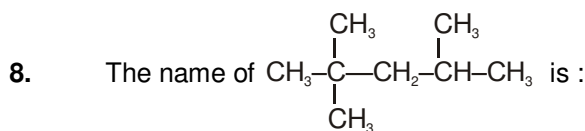
- (A)  $\text{CH}_3 - \text{CH}_2 - \text{Cl}$  (B)  $(\text{CH}_3)_2\text{CHCl}$  (C)  $(\text{CH}_3)_3\text{CCl}$  (D)  $(\text{CH}_3)_3\text{CCH}_2\text{Cl}$

6. What is the correct IUPAC name of  $(\text{C}_2\text{H}_5)_4\text{C}$  is:

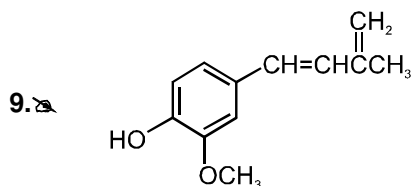
- (A) Tetraethyl methane (B) 3, 3-Diethyl pentane  
 (C) Triethylethane (D) Octane

7. Which of the following are used as primary suffix:

- (A) Bromo (B) Nitro (C) Methoxy (D) -ene



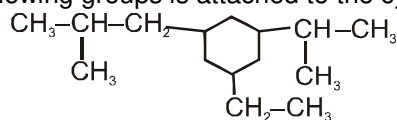
- (A) Isohexane (B) 2, 2, 4-Trimethylpentane  
 (C) Neocatne (D) Isoheptane



What is incorrect about the given structure?

- (A) It has six D.U. (B) It has ten  $\text{sp}^2$  hybrid C-atom  
 (C) It has ten  $\text{sp}^2 - \text{sp}^2$  C-C  $\sigma$  bond (D) All are incorrect.

10. Which of the following groups is attached to the cyclohexane ring in the following compound.

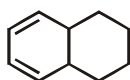


- (A) Methyl (B) n-Propyl (C) Iso-propyl (D) Neo-pentyl

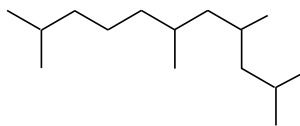
11. Which of the following alkyl group are possible from Iso-butane?

- (A) Iso-Butyl & n-butyl (B) Sec. butyl & Ter. butyl  
 (C) n-butyl & Ter. butyl (D) Iso-butyl & Ter. butyl

12. Number of  $\text{sp}^2 - \text{sp}^2$  C-C  $\sigma$ -bond in the given compound are :



13. How many carbon atoms are present in the principle chain of following compound?



14. How many  $1^\circ$  hydrogens are present in Iso-octane?



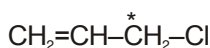
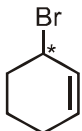
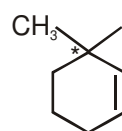
ChemINFO

IUPAC NOMENCLATURE

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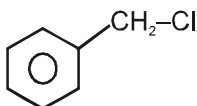
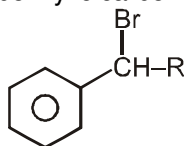
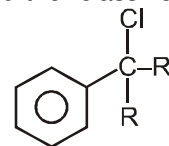
Allylic / Vinylic / Benzylic

(i) **Allylic Compounds:** In these compounds monovalent functional group is linked to  $sp^3$  – hybridised carbon atom which is next to carbon-carbon double bond, i.e. to an allylic carbon. These may be further classified as  $1^\circ$ ,  $2^\circ$  or  $3^\circ$ .

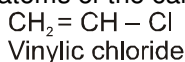
 $1^\circ$  Allylic chloride $2^\circ$ -Allylic bromide $3^\circ$ -Allylic iodide

**Note :** \* represents allylic carbon.

(ii) **Benzylic Compounds:** In these compounds, monovalent functional group is attached to a  $sp^3$ -hybridized carbon atom next to an aromatic ring i.e. to a benzylic carbon. These may be further classified as  $1^\circ$ ,  $2^\circ$ ,  $3^\circ$ .

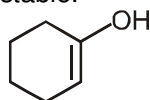
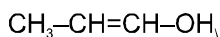
 $1^\circ$ -Benzylic chloride $2^\circ$ -Benzylic bromide $3^\circ$ -Benzylic chloride

(iii) **Vinylic Compounds:** In these compounds, the monovalent functional group is attached to one of the carbon atoms of the carbon - carbon double bond.



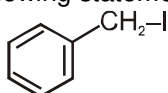
Vinylic chloride

**Note :** The compounds which have double bond and OH group on same carbon are unstable hence vinylic alcohol are unstable.

Vinylic alcohol  
(generally unstable)Vinylic alcohol  
(generally unstable)

**Memorize this theory as soon as you get the DPP. Revize it regularly and master this concept by practice.**

- (i). Which of the following compound is unstable  
(A)  $CH_3-CH=CH-Cl$  (B)  $CH_2=CH-CH_2-OH$  (C)  $CH_2=CH-CH_2-Cl$  (D)  $CH_3-CH=CH-OH$
- (ii).  $CH_2=CH-Br$  is a/an  
(A) Allylic bromide (B) Benzylic bromide (C) Vinylic bromide (D) All of these
- (iii). Which of the following statement is / are correct for following compound



- (A) It is an allylic iodide (B) It is a vinylic iodide  
(C) It is  $2^\circ$  benzylic iodide (D) It is  $1^\circ$  benzylic iodide

### ANSWER KEY

- (i). (D) (ii). (C) (iii). (D)

## DPP No. # A4 (JEE-ADVANCED)

Total Marks : 43

Max. Time: 25 min.

Multiple choice objective ('-1' negative marking) Q.1 to Q.8

(4 marks, 2 min.)

[32, 16]

Numerical Value Questions ('0' negative marking) Q.9

(3 marks, 3 min.)

[03, 03]

Match the Following (no negative marking) Q.10

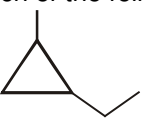
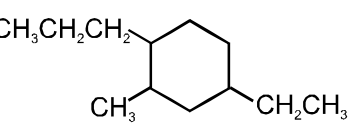
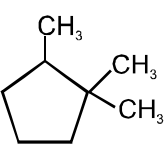
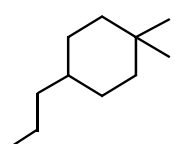
(8 marks, 6 min.)

[08, 06]

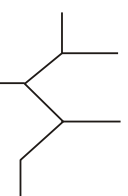
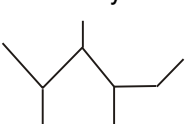
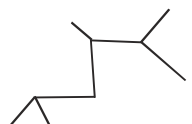
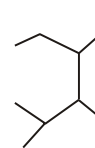
1. Which of the following IUPAC names of alkyl radicals is/are correct:

- (A)  $\text{—CH}_2\text{—CH(CH}_3\text{)—CH(CH}_3\text{)—CH}_3$  is 2, 3-dimethylbutyl
- (B)  $\text{—CH(CH}_3\text{)—CH}_2\text{—CH}_3$  is 1-methylpropyl
- (C)  $\text{—CH(CH}_3\text{)—CH(CH}_3\text{)—CH}_3$  is 1, 2-dimethylpropyl
- (D)  $\text{—CH(CH}_3\text{)—CH}_3$  is 1-methylethyl

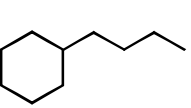
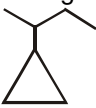
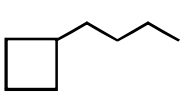
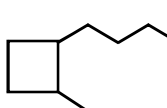
2. Which of the following IUPAC name is/are correct :

- (A)  1-Ethyl-2-methylcyclopropane
- (B)  4-Ethyl-2-methyl-1-propylcyclohexane
- (C)  1,1,2-Trimethylcyclopentane
- (D)  1,1-Dimethyl-4-propylcyclohexane

3. The correct structure of 2,3,4-Trimethylhexane is :

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

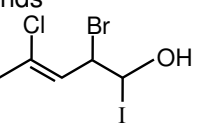
4. In which of the following cyclic ring is a parent chain:

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

5. Which of the following is/are incorrect IUPAC name?

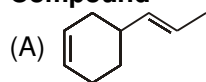
- (A) 1,1,1-Dimethyl ethane
- (B) 2-Methyl-3-ethylpentane
- (C) 3-Methyl-4-ethylhexane
- (D) 3-Ethyl-4-methylhexane

6. Which of the following is/are correct ?

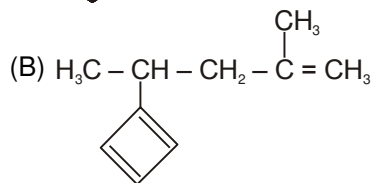
- (A) 1-buten-3-yne has 7  $\sigma$  & 3  $\pi$  bonds
- (B) Total number of substituent in  is 4.
- (C)  $\text{C}_2(\text{CN})_4$  has 9  $\sigma$  and 9  $\pi$  bonds.
- (D) Cyclohexane has only one type of carbon atoms.



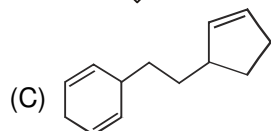
10. Match the following :

Column I  
CompoundColumn II  
Degree of unsaturation

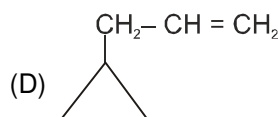
(P) 2



(Q) 5



(R) 4



(S) 3



ChemINFO

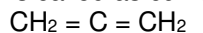
IUPAC NOMENCLATURE

Daily Self-Study Dosage for mastering Chemistry

Dienes, or diolefins or alkadienes

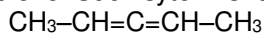
**Dienes or Diolefins or Alkadienes**

Compounds containing two double bonds are called as dienes or diolefins. Dienes may be of three types.

(i) **Cumulative diene** : When the two double bonds are present on the adjacent carbon atoms, the diene is called as cumulative diene. Such system is found in allenes.

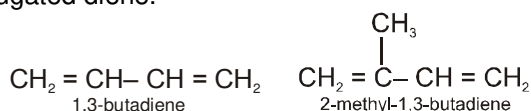
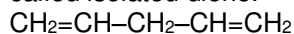
1, 2-Propadiene

(Allene)

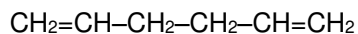


2,3-Pentadiene

(Dimethylallene)

(ii) **Conjugated diene** : when the two double bonds are separated by one single bond, the diene is called as conjugated diene.(iii) **Isolated diene** : When the two double bonds are separated by more than one single bond, the diene is called isolated diene.

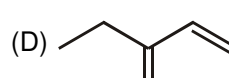
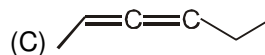
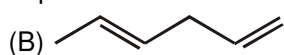
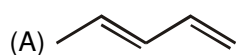
1,4-pentadiene



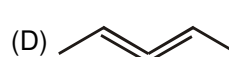
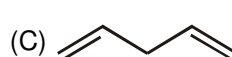
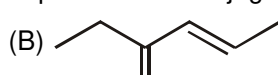
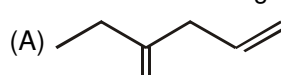
1,5-Hexadiene

**Memorize this theory as soon as you get the DPP. Revise it regularly and master this concept by practice.**

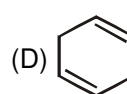
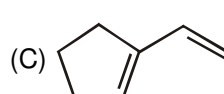
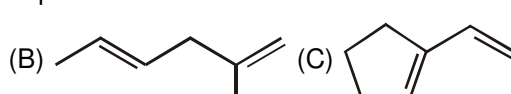
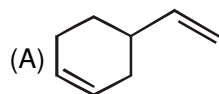
(i). Which of the following compound is cumulative diene.



(ii). Which of the following compound have conjugated diene



(iii). Which of the following compound does not have isolated diene

**ANSWER KEY**

(i).

(C)

(ii).

(B)

(iii).

(C)



## DPP No. # A5 (JEE-MAIN)

Total Marks: 45

Max. Time: 33 min.

Single choice Objective ('-1' negative marking) Q.1 to Q.12

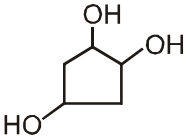
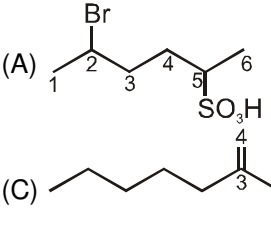
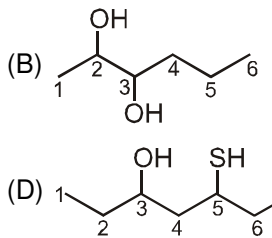
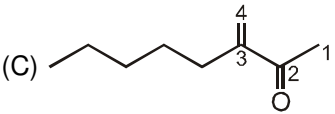
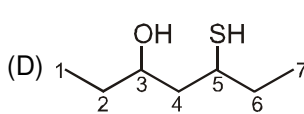
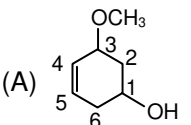
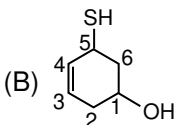
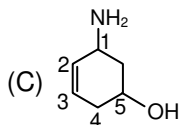
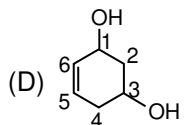
(3 marks, 2 min.)

[36, 24]

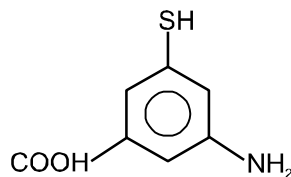
Numerical Value Questions ('0' negative marking) Q.13 to Q.15

(3 marks, 3 min.)

[09, 09]

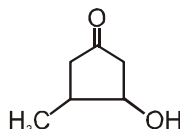
1. The IUPAC name of  $\text{CH}_3-\underset{\text{NH}_2}{\text{CH}}-\text{CH}_2\text{CH}=\text{CH}_2$  is :
- (A) Pent-4-en-2-amine (B) 1-Methylbut-3-en-1-amine  
(C) Pent-1-en-4-amine (D) 4-Methylbut-1-en-4-amine
2. The compound 2-Ethylhex-2-ene-1-thiol has the structure :
- (A)  $\text{C}_2\text{H}_5\text{CH}=\text{CHCH}_2\text{CH}_2\text{SH}$  (B)  $\text{CH}_3\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\text{CH}=\underset{\text{CH}_3}{\text{C}}\text{CH}_2\text{SH}$   
(C)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}=\underset{\text{CH}_2\text{CH}_3}{\text{C}}\text{CH}_2\text{SH}$  (D)  $\text{CH}_3\underset{\text{SH}}{\text{CH}}\text{CH}=\text{CHCH}_2\text{NH}_2$
3. The correct IUPAC name for the compound  $(\text{CH}_3)_3\text{CSO}_3\text{H}$  is :
- (A) Trimethylmethane-1-sulphonic acid (B) 1,1-Dimethylethane-1-sulphonic acid  
(C) Butanesulphonic acid (D) 2-Methylpropane-2-sulphonic acid
4. IUPAC name of  $\text{CH}_3-\text{CH}_2-\underset{\text{OH}}{\text{CH}}-\underset{\text{NH}_2}{\text{CH}}-\underset{\text{SH}}{\text{CH}}-\text{CH}_3$  is :
- (A) 4-Hydroxy-3-mercaptohexan-2-amine (B) 5-Amino-4-mercaptohexan-3-ol  
(C) 3-Mercapto-2-aminoheptan-4-ol (D) 2-Amino-4-hydroxyhexane-3-thiol
5. The correct IUPAC name of the compound  $\text{CH}_3-\text{CH}_2-\underset{\text{CH}_2\text{CH}_2\text{CH}_3}{\underset{\text{CH}_3}{\text{CH}}}-\text{N}-\text{CH}_3$  is :
- (A) 1-Ethyl-N-methyl-N-propylpropan-1-amine (B) 3-[N-Methyl-N-propylamino]pentane  
(C) N-Methyl-N-propylhexan-3-amine (D) N-Methyl-N-propylpentan-3-amine
6. IUPAC name of  is :
- (A) 1,2,4-Trihydroxycyclopentane (B) Cyclopentane-1,3,4-triol  
(C) Cyclopentane-1,2,4-triol (D) 1,3,4-Trihydroxycyclopentane
7. Which of the following has incorrect IUPAC numbering.
- (A)  (B)   
(C)  (D) 
8. Which is not secondary alcohol
- (A) Isopropanol (B) Secondary butanol  
(C) 3-methylpentane-2-ol (D) Pentan-1-ol
9. Which of the following has correct numbering.
- (A)  (B)  (C)  (D) 

10. The IUPAC name of the compound  $\text{CH}_3\text{CONHBr}$  is :  
 (A) 1-Bromoacetamide (B) N-Bromoethanamide  
 (C) Ethanoyl bromide (D) None of these
11. What is the IUPAC name of :



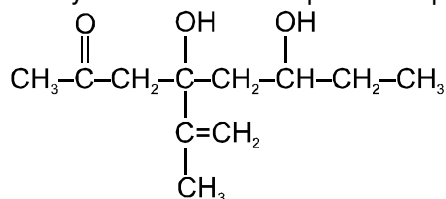
- (A) 3-mercapto-5-amino benzene carboxylic acid (B) 3-amino-5-mercapto benzene carboxylic acid.  
 (C) 5-amino-3-mercapto benzene carboxylic acid (D) 5-mercapto-3-amino benzene carboxylic acid.

12. The correct IUPAC name for the compound is :

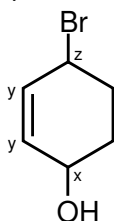


- (1) 4-Hydroxy-3-methylcyclopentan-1-one (2) 3-Hydroxy-4-methylcyclopentan-1-one  
 (3) 5-Methyl -3-oxocyclopentan-1-ol (4) 2-Methyl -4-oxocyclopentan-1-ol

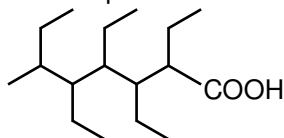
13. How many carbon atoms are present in parent chain (main chain) of the following compound ?



14. In the given compound IUPAC numbering of -Br is :



15. In the given compound how many carbon atoms present in the parent chain.



ChemINFO

## IUPAC NOMENCLATURE

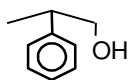
Daily Self-Study Dosage for mastering Chemistry

IUPAC Nomenclature of Aromatic compound in which Benzene is side chain.

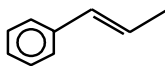
If benzene is used as side chain then **phenyl** is used as prefix. There are following rule in which benzene is used as side chain.

**Rule -1** : If main chain have any functional group or unsaturation (double or triple bond) then benzene is used as side chain irrespective of number of carbon in main chain .

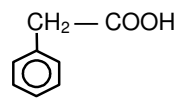
i.e.,



2 - Phenyl propanol - 1

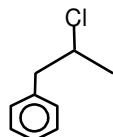


1 - Phenyl prop-1-ene

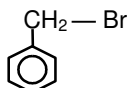


Phenyl ethanoic acid

**Rule – 2 :** If main chain have substitute like halogen, nitro, etc. then benzene is used as side chain.  
i.e.,

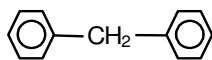


2-chloro-1-phenylpropane

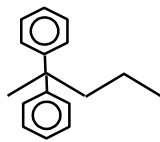


Bromophenylmethane

**Rule – 3 :** If more than one benzene ring attached to same carbon atom then it is consider as side chain.  
i.e.,



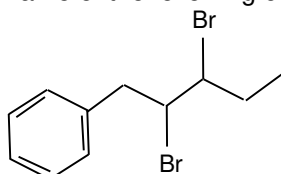
Diphenyl methane



2, 2-Diphenylpentane

**Memorize this theory as soon as you get the DPP. Revize it regularly and master this concept by practice.**

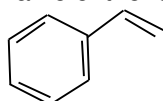
(i). Correct IUPAC name of the following compound is



- (A) 2,3-Dibromo-1-phenyl pentane  
(C) 2,3-Dibromophenyl benzene

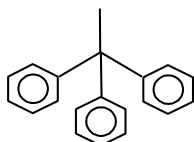
- (B) 3,4-Dibromo-5-phenyl pentane  
(D) 3,4-Dibromophenyl benzene

(ii). Correct IUPAC name of the following compound is



- (A) Ethenyl benzene (B) Ethylbenzene (C) Phenylethene (D) Ethene benzene

(iii). Correct IUPAC name of the following compound is :



- (A) Ethyl tribenzene (B) 1, 1, 1-Triphenyl ethane  
(C) 1-Ethyl-1,1-diphenyl benzene (D) None of these

### ANSWER KEY

- (i) (A) (ii) (C) (iii) (B)

### DPP No. # A6 (JEE-ADVANCED)

Total Marks : 42

Max. Time: 26 min.

Multiple choice objective ('-1' negative marking) Q.1 to Q.7

(4 marks, 2 min.)

[28, 14]

Numerical Value Questions ('0' negative marking) Q.8 to Q.9

(3 marks, 3 min.)

[06, 06]

Match the Following (no negative marking) Q.10

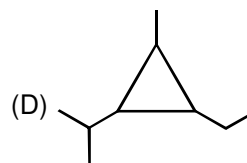
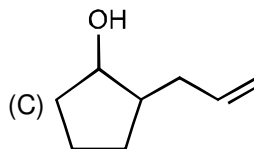
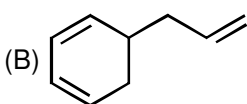
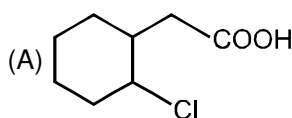
(8 marks, 6 min.)

[08, 06]

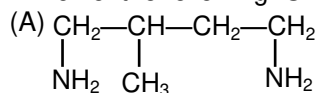
1. Which of the following is/are incorrect IUPAC name

- (1) 2-Bromo cyclohex-5-ene carbaldehyde (2) Ethyl-2-vinyl pentanoate  
(3) 5-Bromo-3-chlorohept-3-ene (4) 2-Ethenylhexa-1,5-diene

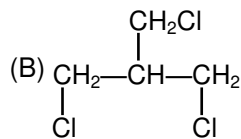
2. In which of the following cyclic ring is parent chain ?



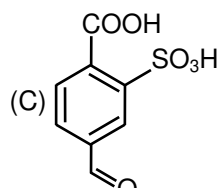
3. Which of the following IUPAC names are correct :



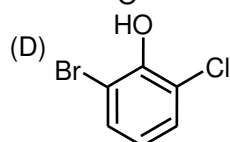
3-(Aminomethyl)butanamine



1,3-Dichloro-2(chloromethyl)propane

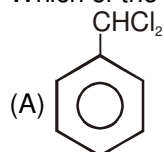


4-formyl-2-sulphobenzoic acid

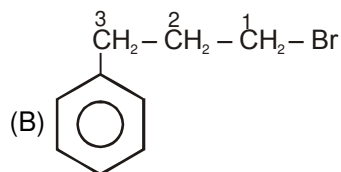


2-bromo-6-chlorophenol

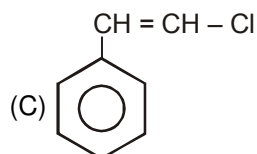
4. Which of the following has correct IUPAC name ?



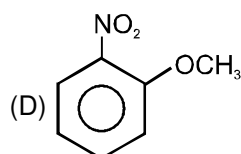
Dichloro phenylmethane (Benzal chloride)



1-Bromo-3-phenylpropane

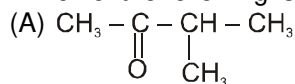


1-chloro-2-phenyl ethene

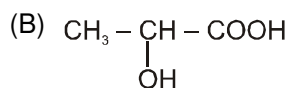


1-methoxy-2-nitrobenzene

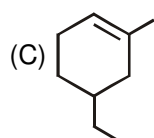
5. Which of the following is/ are incorrect IUPAC name :



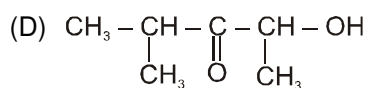
2-Methylbutan -3-one



2-Hydroxypropanoic acid

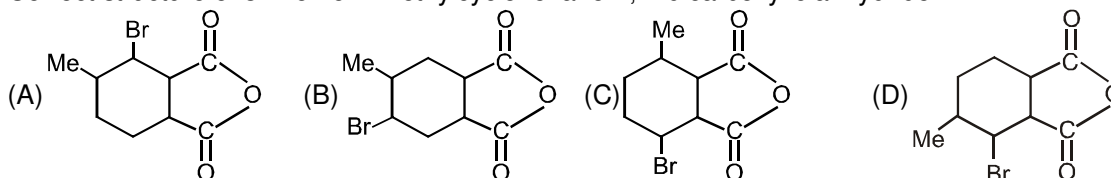


5-Ethyl-1-methylcyclohex-1-ene



4-Methyl-3-oxopentan-2-ol

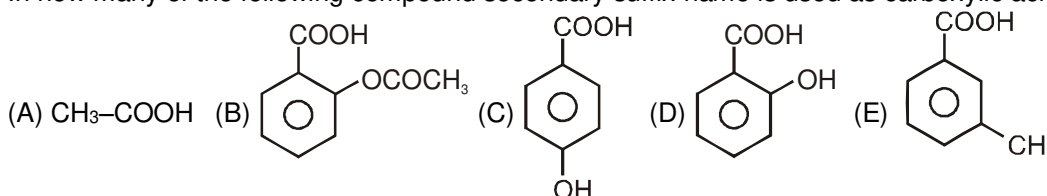
6. ✎ Correct structure of 3-Bromo-4-methylcyclohexane-1, 2-dicarboxylic anhydride



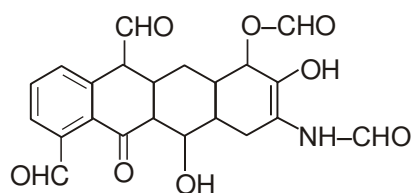
7. Which of the following is/are incorrect IUPAC name?

- (A) 3-Methylenebutanamide (B) Ethenylcyclohexane  
(C) 1,2,5-tribromo-3,4,6-trichlorocyclohexane (D) Tricyclopropyl methane

8. In how many of the following compound secondary suffix name is used as carboxylic acid ?



9.

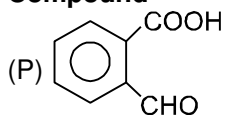


How many aldehyde ( $-\text{CHO}$ ) groups present in the given compound?

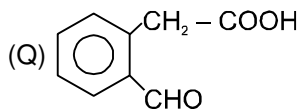
10. ✎ Match the following compound with their IUPAC name:

**Column-I**  
**Compound**

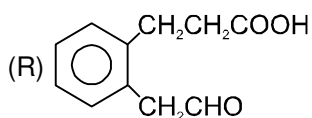
**Column-II**  
**IUPAC Name**



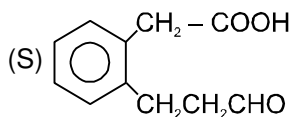
(W) 3-[2-(2-Oxoethyl)phenyl]propanoic acid



(X) 2-[2-(3-Oxopropyl)phenyl]ethanoic acid



(Y) 2-(2-Formylphenyl)ethanoic acid



(Z) 2-Formylbenzenecarboxylic acid



**ChemINFO**

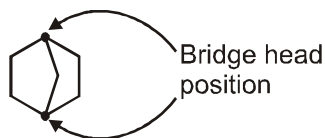
**IUPAC NOMENCLATURE**

Daily Self-Study Dosage for mastering Chemistry

IUPAC Name of Bicyclo Bridgehead Compounds

### Bicyclo Compounds

Compounds with two fused cycloalkane rings are called bicyclo compounds. The carbon atoms common to both rings are called bridge head atoms. A bond or chain of carbon atoms connecting the bridge heads is called a bridge.

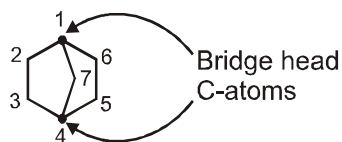


A bicyclic compound is named by attaching the prefix bicyclo to the name of hydrocarbon corresponding to the total number of carbon atoms in two rings.

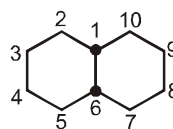
**Numbering starts from bridge head** to larger ring and then back to smaller ring.

The bracketed number show the number of carbon atoms (except bridge head position carbon atoms) in each bridge and they cited in **decreasing order**.

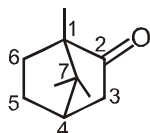
**Ex.**



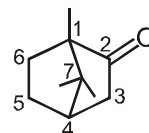
Bicyclo[2.2.1]heptane



Bicyclo[4.4.0]decane




1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one



1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one

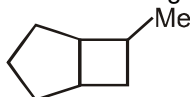
**Memorize this theory as soon as you get the DPP. Revize it regularly and master this concept by practice.**

(i). The IUPAC name of the compound  is

- (A) Bicyclo [2.1.0] pentane  
(C) Bicyclo [0.1.2] pentane

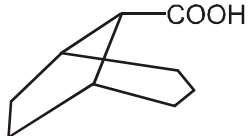
- (B) 1,2-cyclopropylcyclobutane  
(D) 1-Methylenecyclobutane

(ii). The systematic naming of the following cycloalkane is



- (A) 6-Methylbicyclo [3.2.0] heptane  
(C) 2-Methylbicyclo [3.2.0] heptane

- (B) 7-Methylbicyclo [3.2.0] heptane  
(D) 3-Methylbicyclo [3.2.0] heptane

(iii). IUPAC name of  is

- (A) Bicyclo [3.2.1] octan-2-oic acid  
(C) Bicyclo [3.2.1] octan-8-carboxylic acid

- (B) Bicyclo [3.2.1] octan-1-carboxylic acid  
(D) None of these

### ANSWER KEY

(i) (A) (ii) (A) (iii) (C)

### DPP No. # A7 (JEE-MAIN)

Total Marks: 45

Max. Time: 33 min.

Single choice Objective ('-1' negative marking) Q.1 to Q.12

(3 marks, 2 min.)

[36, 24]

Numerical Value Questions ('0' negative marking) Q.13 to Q.15

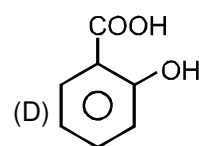
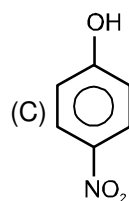
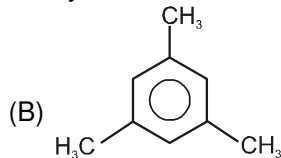
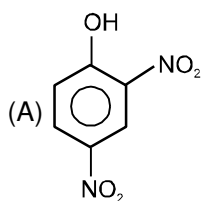
(3 marks, 3 min.)

[09, 09]

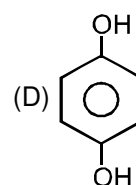
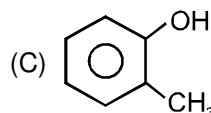
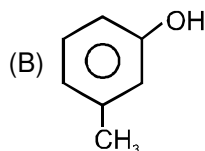
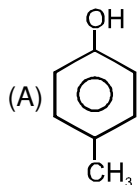
- The structures  $(\text{CH}_3)_2\text{CHCH}_2\text{Br}$  and  $\text{CH}_3(\text{CH}_2)_3\text{Br}$  shows :  
(A) position isomers (B) chain isomerism  
(C) functional isomerism (D) None of these
- n-Propyl alcohol and isopropyl alcohol are examples of :  
(A) Position isomers (B) Chain isomerism (C) Tautomerism (D) Geometrical isomerism
- The compound which is not isomeric with diethyl ether is :  
(A) n-Propylmethyl ether (B) Butan-1-ol  
(C) 2-Methylpropan-2-ol (D) Butanone
- The compound  $\text{C}_4\text{H}_{10}\text{O}$  can show  
(A) Metamerism (B) Functional isomerism (C) Positional isomerism (D) All types

5. What is the common name of Ethanoic acid ?  
 (A) Formic acid (B) Acetic acid (C) Acetaldehyde (D) Propionic acid

6. Which of the following is salicylic acid?

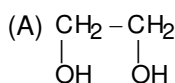


7. Which of the following is not cresol.

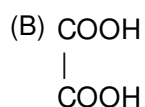


8. What is the common name of Ethyl ethanoate?  
 (A) Methyl formate (B) Acetaldehyde (C) Ethyl formate (D) Ethyl acetate

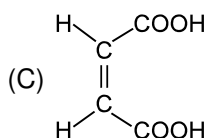
9. Which of the following is incorrectly matched?



Glycol



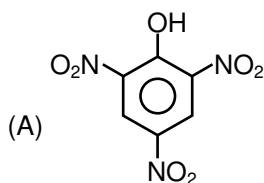
Oxalic acid



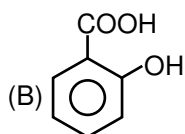
Fumaric acid

(D)  $\text{HOOC}-\text{CH}_2-\text{CH}_2-\text{COOH}$  Succinic acid

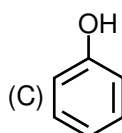
10. Select the incorrect name of the following compound.



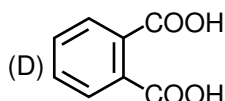
Picric acid



Salicylic acid

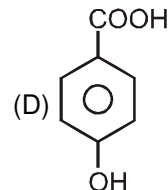
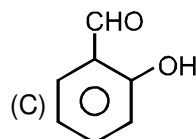
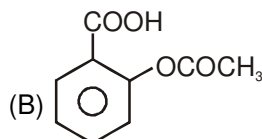
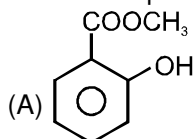


Phenol

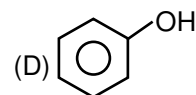
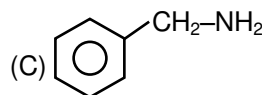
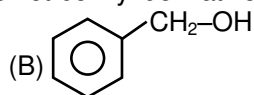
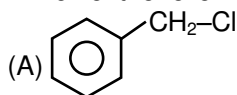


Isophthalic acid

11. Which is Aspirin?



12. Which of the following is not benzyl derivative :



13. What is the possible number of isomers of the aromatic compounds of molecular formula  $C_7H_7Cl$ .

14. Number of structurally isomeric carbonyl compounds possible with molecular formula  $C_5H_{10}O$  .....

15. How many dichlorodiphenyl with molecular formula  $C_{12}H_8Cl_2$  of each benzene ring containing only one (-Cl) group are possible :



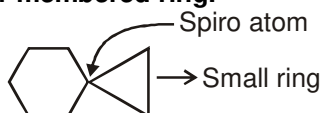
**ChemINFO**

**IUPAC NOMENCLATURE**

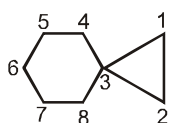
Daily Self-Study Dosage for mastering Chemistry

IUPAC Name of Spiro Compounds

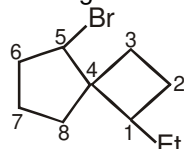
Spiro are polycyclics that share only one carbon atom. In substituted spiro, the **numbering is started next to the spiro atom in lower membered ring**.



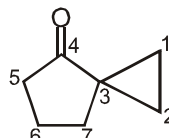
The prefix spiro is followed by brackets containing the number of carbon atoms in **ascending order**, in each ring attached to common carbon atom and ending with the name of hydrocarbon corresponding to the total number of carbon atoms in two rings.



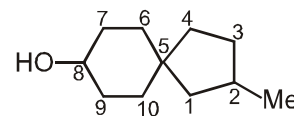
Spiro[2.5]octane



5-Bromo-1-ethylspiro[3.4]octane



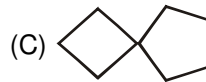
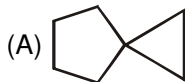
Spiro[2.4]heptan-4-one



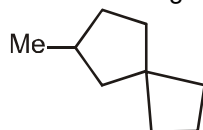
2-Methylspiro[4.5]decan-8-ol

**Memorize this theory as soon as you get the DPP. Revize it regularly and master this concept by practice.**

(i). The structure of spiro [3.3] heptane is :



(ii). The systematic naming of the following compounds is :



(A) 2-Methylspiro[3.4]octane

(B) 3-Methylspiro[3.4]octane

(C) 6-Methylspiro[3.4]octane

(D) 7-Methylspiro[3.4]octane

(iii). The correct IUPAC name for the compound



(A) Spiro[3.5]non-1-ene

(B) Spiro[3.5]non-5-ene

(C) Spiro[5.3]dec-5-ene

(D) Spiro[3.5]non-2-ene

### ANSWER KEY

(i) (D) (ii) (C) (iii) (B)

### DPP No. # A8 (JEE-ADVANCED)

Total Marks : 42

Max. Time: 26 min.

Multiple choice objective ('-1' negative marking) Q.1 to Q.7

(4 marks, 2 min.)

[28, 14]

Numerical Value Questions ('0' negative marking) Q.8 to Q.9

(3 marks, 3 min.)

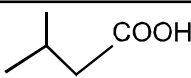
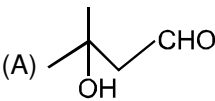
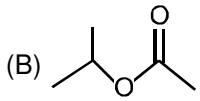
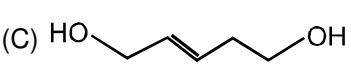
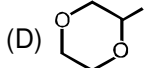
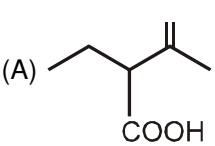
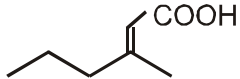
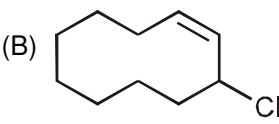
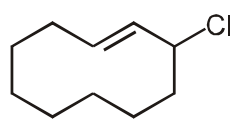
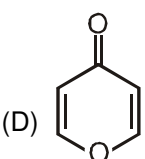
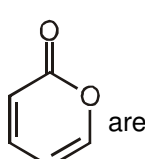
[06, 06]

Match the Following (no negative marking) Q.10

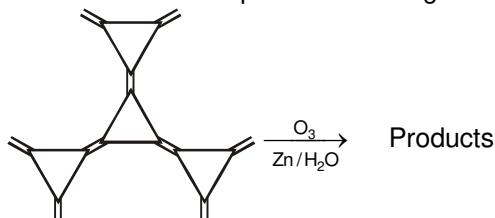
(8 marks, 6 min.)

[08, 06]

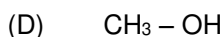
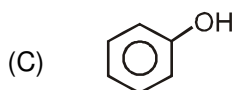
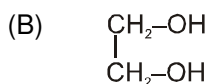
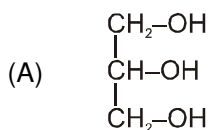


1.  have functional isomer relation with
- (A)  (B) 
- (C)  (D) 
2. Which is the correct relationship mentioned in bracket :
- (A)  $\text{CH}_3\text{—CN}$  and  $\text{CH}_3\text{NC}$  (Functional isomers)
- (B)  $\text{CH}_3\text{—O—N=O}$  and  $\text{CH}_3\text{—N}\overset{\text{O}}{\parallel}\text{—O}$  (Functional isomers)
- (C)  $\text{CH}_3\text{—CH}_2\text{—CH}_2\text{—CHO}$  and  $\text{H}_3\text{C—CH}\overset{\text{CHO}}{\mid}\text{—CH}_3$  (Chain isomer)
- (D)  $\text{H—C}\overset{\text{O}}{\parallel}\text{—C}\overset{\text{O}}{\parallel}\text{—O—CH}\overset{\text{CH}_3}{\mid}\text{—CH}_3$  and  $\text{H—C}\overset{\text{O}}{\parallel}\text{—O—C}\overset{\text{O}}{\parallel}\text{—CH}_2\text{—CH}_2\text{—CH}_3$  (Functional isomers)
3. Which of the following alkene can give 3-methylpentane on hydrogenation.
- (A) 3-methylpent-1-ene (B) 3-methylpent-2-ene
- (C) 2-methylpent-1-ene (D) 2-ethylbut-1-ene
4.  $\text{H—C}\overset{\text{O}}{\parallel}\text{—OC}_2\text{H}_5$  and  $\text{CH}_3\text{—C}\overset{\text{O}}{\parallel}\text{—CH}_2\text{—OH}$
- Which is/are true about above two structure –
- (A) Degree of unsaturation is (1) (B) Both are functional isomers
- (C) Both are metamers (D) Both have same molecular formula
5.  $\text{CH}_3\text{—C}\overset{\text{O}}{\parallel}\text{—O—C}\overset{\text{O}}{\parallel}\text{—C}_6\text{H}_{10}\text{—CH}_3$  and  $\text{CH}_3\text{—CH}_2\text{—C}\overset{\text{O}}{\parallel}\text{—O—C}\overset{\text{O}}{\parallel}\text{—C}_6\text{H}_{10}$
- Which is/are incorrect about given structure
- (A) Both are functional isomers (B) The degree of unsaturation is 2
- (C) Both have same molecular formula (D) Both are metamers to each other
6. Which of the following relation is correct :
- (A)  and  are chain isomers
- (B)  and  are positional isomers
- (C)  $\text{CH}_3\text{O—C}\overset{\text{O}}{\parallel}\text{—CH}_2\text{—CH}_2\text{—CH}_2\text{—CH}_2\text{—CH=O}$  and  $\text{C}_2\text{H}_5\text{O—C}\overset{\text{O}}{\parallel}\text{—CH}_2\text{—CH}_2\text{—CH=O}$  are metamers
- (D)  and  are functional group isomers

7. Which statement(s) is/are correct.  
 (A) Degree of unsaturation tells about H-deficiency from any molecule in the form of multiple bond or ring.  
 (B) Hydrogenation tells about carbon skeleton.  
 (C) Monohalogenation tells about type of chemically different hydrogen.  
 (D) Ozonolysis tells about position of double or triple bond in molecule.
8. How many monochloro structural isomers will produce when 3-Methylpentane, reacts with chlorine in presence of sunlight?
9. Number of different products in the given ozonolysis reaction will be :



10. Match the Column  
 Column-I (Compounds)



Column-II (Common Names)

(p) Carbinol

(q) Glycerol

(r) Ethylene glycol

(s) Phenol

DPP No. # A9 (JEE-MAIN)

Total Marks: 60

Single choice Objective ('-1' negative marking) Q.1 to Q.12

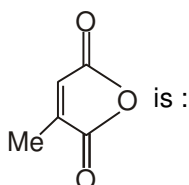
Numerical Value Questions ('0' negative marking) Q.13 to Q.15

Max. Time: 33 min.

(3 marks, 2 min.) [36, 24]

(3 marks, 3 min.) [09, 09]

1. Correct IUPAC name of the compound



- (A) 2-Methylbutenedioic anhydride  
 (C) 2-Methyl-1,4-diketobutene epoxy

- (B) 3-Methylbutenedioic anhydride  
 (D) 2-Methylcyclopentanoxy-1,4-dione

2. The IUPAC name of the compound  $\text{H} - \overset{\text{O}}{\parallel}{\text{C}} - \text{N} \begin{array}{l} \text{CH}_3 \\ \text{CH}_2 - \text{CH}_3 \end{array}$  is L:

- (A) N-Ethyl-N-methylmethanamide  
 (C) N-Ethyl-N-methylformamide

- (B) N-Methyl-N-ethylmethanamide  
 (D) N-Ethylmethylmethanamide

3. Which of the following amino acids contains sulfur atom

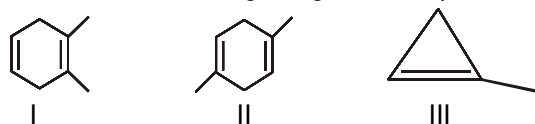
- (A) Serine (B) Cystein (C) Alanine (D) Proline

4. Which of the following contains two-COOH group

- (A) Aspartic acid (B) Tyrosine (C) Histidine (D) Glycine

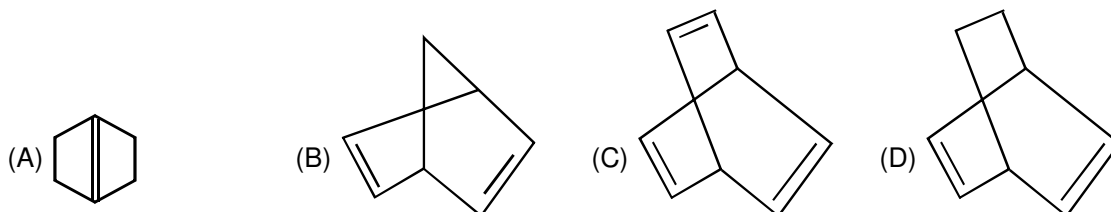
5. Which of the following give positive test with neutral  $\text{FeCl}_3$   
 (A) Leucine (B) Tyrosine (C) Asparagine (D) Serine

6. Which of the following will give same product on ozonolysis.



- (A) I & II only (B) II & III only (C) I and III only (D) All

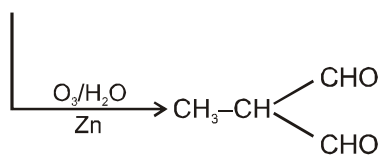
7. can be obtained by ozonolysis of -



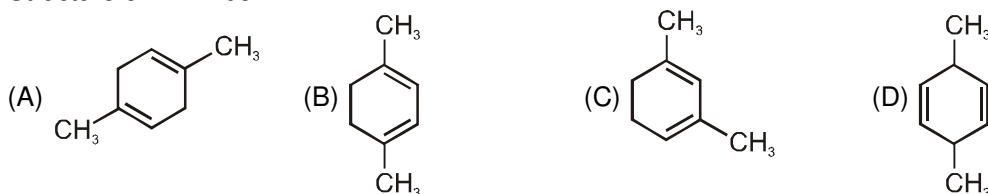
8. on reductive ozonolysis [ $\text{O}_3/\text{Zn}/\text{H}_2\text{O}/\Delta$ ] gives:

- (A)  $(\text{CHO})_2 + \text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{CH}_3$  (B)  $(\text{CHO})_2 + \text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{CH}_3 + \text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{H}$   
 (C)  $\text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{H} + \text{CH}_3-\text{C}(=\text{O})-\text{C}(=\text{O})-\text{CH}_3$  (D) Benzene is stable hence cannot be ozonolysed

9.  $\text{X} \xrightarrow[\Delta]{\text{H}_2/\text{Ni}} \text{C}_8\text{H}_{16} \xrightarrow{\text{Cl}_2/h\nu} 3 \text{ monochloro structural product.}$



Structure of X will be :

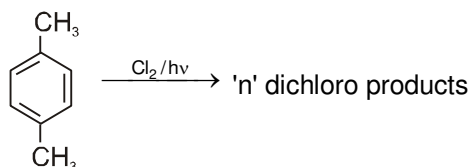
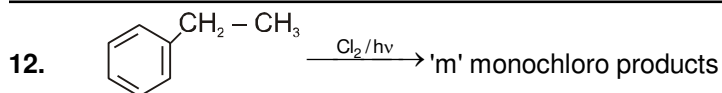


10. Molecular formula  $\text{C}_3\text{H}_9\text{N}$  represents :

- (A) Only primary amine  
 (B) Only secondary amine  
 (C) Three primary amine, two secondary amine and one tertiary amine  
 (D) Two primary amine, one secondary amine and one tertiary amine

11. How many ketones with molecular formula  $\text{C}_5\text{H}_{10}\text{O}$  is possible (structural isomers only).

- (A) 2 (B) 3 (C) 4 (D) 6

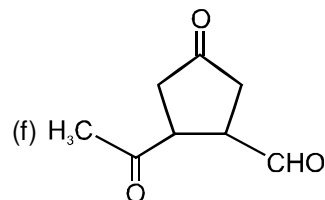
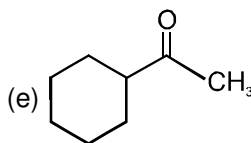
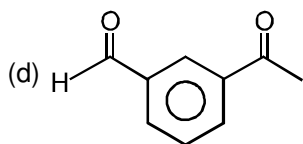


The value of m and n are respectively :

- (A) 2 and 1 (B) 2 & 2 (C) 1 & 2 (D) 1 & 1

13. How many compounds will give positive iodoform test but negative Tollen's test ?

- (a)  $\text{CH}_3\text{CHO}$  (b)  $\text{CH}_3 - \text{C}(=\text{O}) - \text{CH}_3$  (c)  $\text{CH}_3 - \text{CH}(\text{OH}) - \text{CH}_2 - \text{CH}_3$



14. Consider all possible isomeric amines of molecular weight = 73. How many of them give isocyanide with  $\text{CHCl}_3$  and  $\text{KOH}$

15. In how many of the following compound.  $-\text{OH}$  group directly attached on the benzene ring ?

- (1) Glycol (2) Glycerol (3) o-cresol (4) p-cresol  
(5) Phenol (6) aniline (7) anisol (8) resorcinol  
(9) catechol (10) Hydroquinone

### DPP No. # A10 (JEE-ADVANCED)

Total Marks : 44

Max. Time : 24 min.

Multiple choice objective ('-1' negative marking) Q.1 to Q.9

(4 marks, 2 min.)

[36, 18]

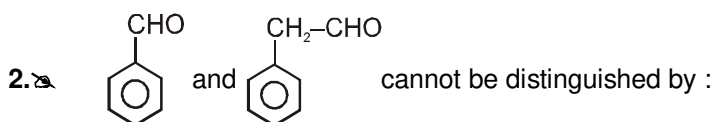
Match the Following (no negative marking) Q.10

(8 marks, 6 min.)

[08, 06]

1. Which of the following will decolourise highly diluted  $\text{KMnO}_4$  solution ?

- (A)  $\text{C}_3\text{H}_8$  (B)  $\text{CH}_4$  (C)  $\text{C}_2\text{H}_2$  (D)  $\text{C}_2\text{H}_4$



- (A) Iodoform test (B) Tollen's test  
(C) Fehling solution test (D) 2,4-DNP test

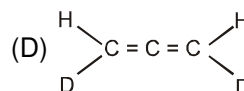
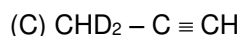
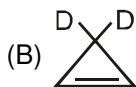
3. The test that can be used to distinguish between 1-propanol and 2-propanol :

- (A) Lucas test (B) Iodoform test (C) Victor mayer test (D) Carbyl amine test

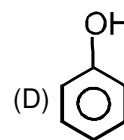
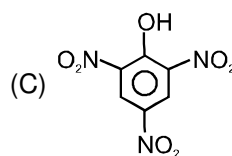
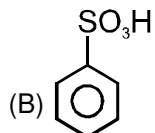
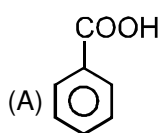
4. Test to differentiate between  $(\text{CH}_3\text{OH})$  and  $(\text{Ph-OH})$  is/are :

- (A) Victor mayer test (B) Neutral  $\text{FeCl}_3$  (C)  $\text{Br}_2/\text{H}_2\text{O}$  (D) Na metal

5. What is/are the structure of a compound  $(\text{C}_3\text{H}_2\text{D}_2)$  which decolourise bromine water.



6. Which of the following compound will give positive test with  $\text{NaHCO}_3$ ?



7. Which of the following test will be given by (squaric acid)

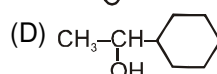
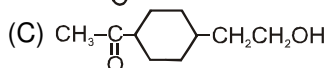
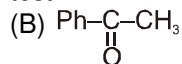
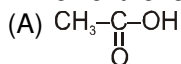
(A)  $\text{Br}_2$  water test

(B) 2, 4-DNP test

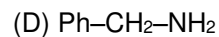
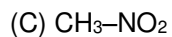
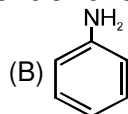
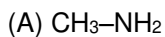
(C) Neutral  $\text{FeCl}_3$

(D) Tollen's test

8. Which of the following will give positive iodoform test.



9. Compound giving offensive smell on heating with chloroform and alkali.



10. Match the given compounds in Column-I with their appropriate descriptions given in Column-II.

	Column-I		Column-II
(A)	$\text{CH}_3-\text{CH}(\text{OH})-\text{CH}_3$	(p)	It evolve $\text{CO}_2$ gas with $\text{NaHCO}_3$
(B)		(q)	It gives iodoform test
(C)		(r)	It gives Lucas reagent test .
(D)	Reductive ozonolysis products of Benzene	(s)	It gives Tollen's test
		(t)	It gives 2,4 DNP test