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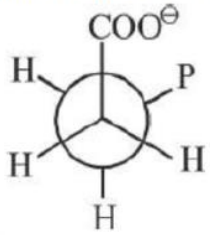
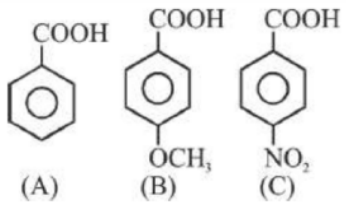
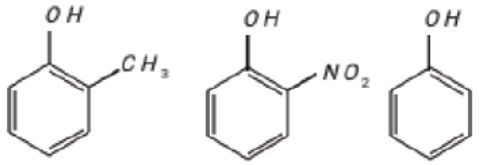
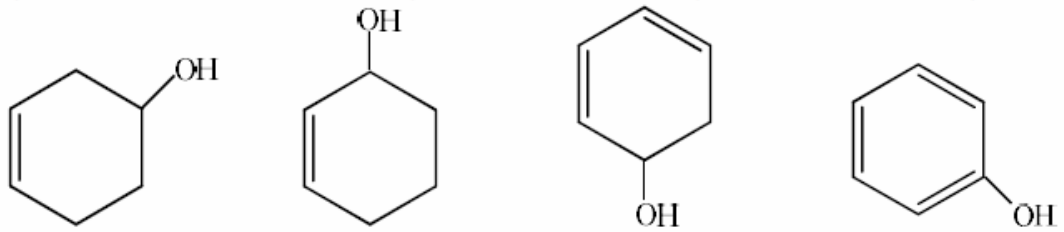
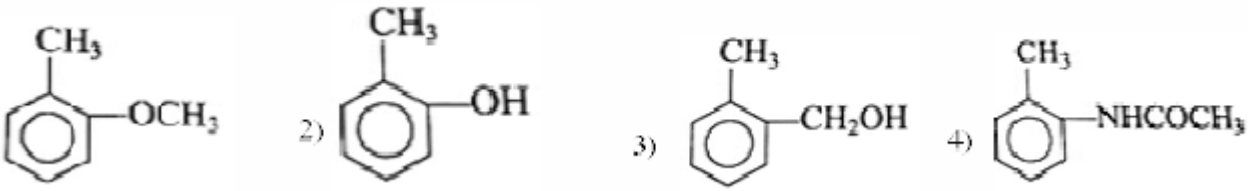
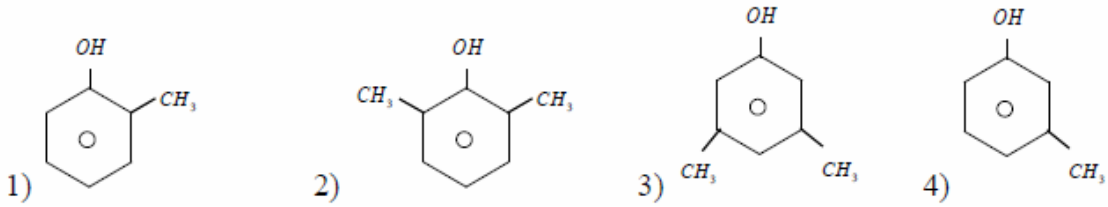
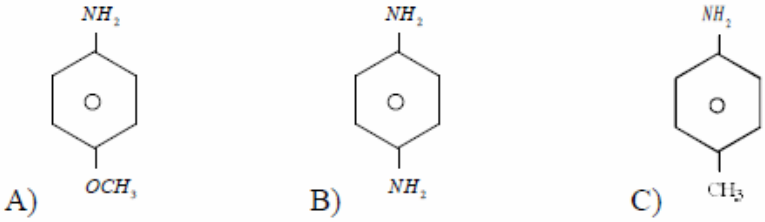
GOC

1	In which of the following Gauche form is more stable if 'P' is :-  (1) $-CH_3$ (2) $-CH_2CH_3$ (3) $-COO^{\ominus}$ (4) $-\overset{\oplus}{N}H_3$
2	Correct –I effect order is :- (1) $-N^{\oplus}R_3 > -CN > -COOH > -OH$ (2) $-N^{\oplus}R_3 > -COOH > -CN > -OH$ (3) $-OH > -CN > -COOH - N^{\oplus}R_3$ (4) $-CN > -OH > -COOH - N^{\oplus}R_3$
3	Consider  (A) (B) (C) Correct order of above molecule in decreasing of pk_a value :- (1) B > C > A (2) C > A > B (3) B > A > C (4) A > B > C
4	Arrange the following carbocations in decreasing order of stability I) Ethyl carbocation II) Tertiary butyl carbocation III) Tropilium ion 1) III > II > I 2) II > I > III 3) I > II > III 4) I > III > II
5	Arrange the following in increasing order of acidic character  I II III 1) I < III < II 2) I < II < III 3) II < I < III 4) III < II < I

6	**What is decreasing order of dehydration in following compounds in the presence of conc. H_2SO_4.** I) II) III) IV)  1) IV > III > II > I 2) III > II > I > IV 3) I > II > III > IV 4) III > IV > II > I
7	**Which of the following set of groups are meta-directing groups** 1) $-NO_2, -NH_2, -COOH, -COOR$ 2) $-NO_2, -CHO, -SO_3H, -COOR$ 3) $-CN, -CHO, -NHCOCH_3, -COOR$ 4) $-CN, -NH_2, -NHR, -OCH_3$
8	Optical isomerism arises from the presence of 1) A centre of symmetry 2) A line of symmetry 3) An asymmetric carbon atom 4) All of the above
9	. Which one is the most reactive towards electrophilic reagent 
10	An incorrect statement with respect to S_N1 and SN_2 mechanisms for alkyl halide is 1) A strong nucleophile in an aprotic solvent increases the rate or favours S_N2 reaction 2) Competing reaction for an S_N2 reaction is rearrangement 3) S_N1 reactions can be catalysed by some Lewis acids 4) A weak nucleophile and aprotic solvent increases the rate S_N1 reaction
11	Identify correct acidic strength order in the following compounds A) $H-C\equiv C-H$ B) $CH_3-C\equiv C-H$ C) $H_2C=CH_2$ D) CH_3-CH_3 1) $B>C>D>A$ 2) $A>B>D>C$ 3) $A>B>C>D$ 4) $D>C>B>A$
12	Which one is most acidic compound ? 
13	The correct decreasing order of basic strength for the following compounds is  1) $A>B>C$ 2) $B>A>C$ 3) $A>C>B$ 4) $C>B>A$

14 Which one of the following has all the effects, namely inductive, mesomeric and hyper conjugation?

1) CH_3Cl 2) $CH_3-CH=CH_2$

3) $CH_3.CH=CH.\overset{O}{\overset{\|}{C}}.CH_3$ 4) $CH_2=CH-CH=CH_2$

15 The dihedral angle between two methyl groups in partially eclipsed conformation of n-butane is

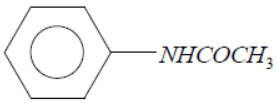
1) 180^0 2) 120^0 3) 90^0 4) $109^0 28^1$

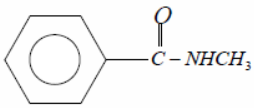
16 The correct stability order of the following resonance structures is :

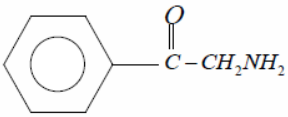
i) $H_2C=\overset{+}{N}=\overset{-}{N}$ ii) $H_2\overset{+}{C}-N=\overset{-}{N}$ iii) $H_2\overset{-}{C}-\overset{+}{N}\equiv N$ iv) $H_2\overset{-}{C}-N=\overset{+}{N}$

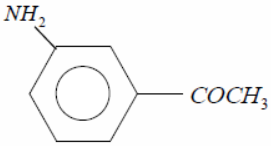
1) i > ii > iv > iii 2) i > iii > ii > iv 3) i > ii > iii > iv 4) iii > i > iv > ii

17 The correct order of basic strength of the following is

a) 

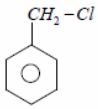
b) 

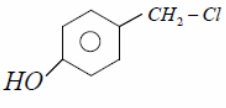
c) 

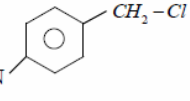
d) 

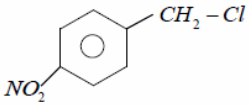
1) a > b > c > d 2) $d>b>c>a$ 3) $d>a>b>c$ 4) $c>d>b>a$

18 Order of reactivity towards nucleophilic substitution reaction of the compounds

i) 

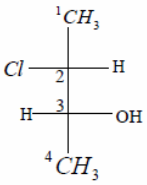
ii) 

iii) 

iv) 

1) $i>ii>iii>iv$ 2) $ii>i>iii>iv$ 3) $iv>iii>ii>i$ 4) $iii>iv>ii>i$

19 The absolute configuration of the C_2 and C_3 atoms in the molecule with the structure is



1) 2S, 3S 2) 2R,3S 3) 2S,3R 4) 2R, 3R

20 Most acidic of the following is

1) Phenol 2) m- cresol

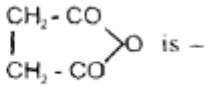
3) m- methoxy phenol 4) p - ethyl phenol

21 IUPAC name of the following compound is

$$\begin{array}{ccc} CH_2 & -CH & -CH_2 \\ | & | & | \\ CN & CN & CN \end{array}$$

(1)3-cyanopentane-1,5-dinitrile
(2)Propane-1,2,3-tricarbonitrile
(3)Propane-1,2,3-trinitrile
(4)Propane-tricyanide

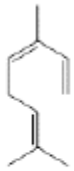
22

The IUPAC name of  is –

(1) Ethane dioicanhydride
(2) Butane dioicanhydride
(3)Butanoic anhydride
(4)Ethanoic anhydride

23

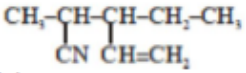
IUPAC name of the following compound will be:-



(1)3,4-Dimethyl octa-1,3,6-triene
(2)3,7-Dimethyl octa-1,3,6-triene
(3)2,6-Dimethyl octa-2,5,7-triene
(4)2,6-Dimethlyl octa-1,5,7-triene

24

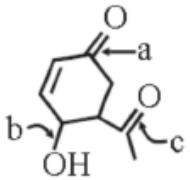
The IUPAC name of given compound is



(1) 2-Cyano-3-vinylpentane
(2) 2-Methyl-3-vinylpentanenitrile
(3) 3-Ethyl-2-methylpent-4-ene-1-nitrile
(4) 2-Methy-3-ethylpent-4-ene-1-nitrile

25

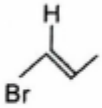
The correct order of Bond length for bonds (a,b,c) is :-

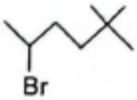


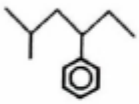
(1)a> b > c (2)a > c > b
(3)b> a > c (4)b > c > a

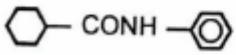
26

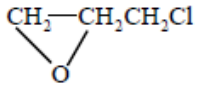
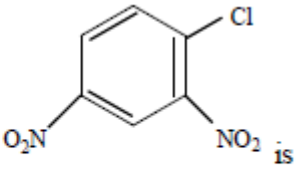
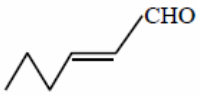
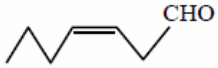
Which one of the following is not according to IUPAC system

(1)  1-Bromopropene

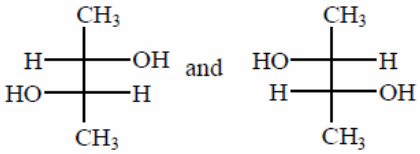
(2)  2-Bromo-5,5-dimethylhexane

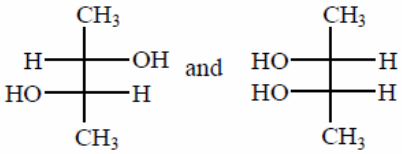
(3)  2-Methyl-4-phenylhexane

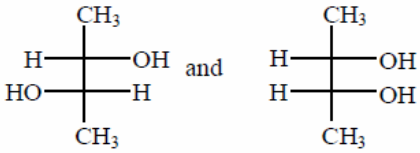
(4)  N-Phenylcyclohexane carboxamide

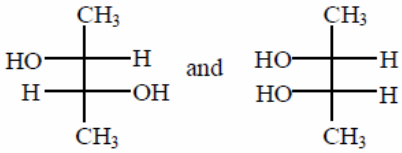
27	IUPAC name of the compound.  is: 1) 1-chloro-2, 3-epoxypropane 2) 3-chloro-1, 2-epoxypropane 3) 1-chloroethoxymethane 4) none of the above
28	The hybrid states of carbon atoms in $C_2(CN)_4$ are A and B and number of π bonds in compound is C then. 1) A = SP B = SP^2 and C = 9 2) A = SP^2 B = SP and C = 9 3) A = SP^3 B = SP and C = 9 4) A = SP^2 B = SP^2 and C =9
29	The IUPAC name of the following compound  is 1) 1-Chloro-2, 4-dinitro benzene 2) 2-Choloro-1, 5-dinitro benzene 3) 1, 3-Dinitro-2-Chloro benzene 4) 4-Chloro-1, 3-dinitro benzene
30	The compound that has two isopropyl groups is 1) 2-methyl pentane 2) 2,2-dimethyl pentane 3) 2,3-dimethyl butane 4) 2,2,3-trimethyl pentane
31	**Which of the following compounds is not chiral –** (1) $DCH_2CH_2CH_2Cl$ (2) CH_3CH_2CHDCl (3) CH_3CHDCH_2Cl (4) $CH_3CHClCH_2D$
32	**Which of the following is a chiral compound –** (1) 2-methyl pentanoic acid (2) 3-methyl pentanoic acid (3) 4-methyl pentanoic acid (4) Both (1) and (2)
33	**Structure of trans 2-hexenal is -** (1)  (2)  (3)  (4) None of these
34	**Dihedral angle in staggered form of ethane is –** (1) 0° (2) 120° (3) 60° (4) 180°

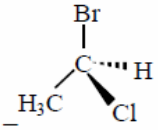
35 **Which of the following pairs of compounds are enantiomers -**

(1)  and

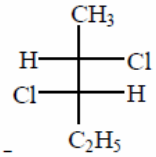
(2)  and

(3)  and

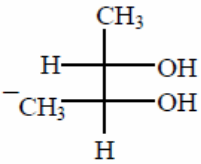
(4)  and

36 **The configuration of the given compound is –** 

(1) E (2) R (3) S (4) Z

37 **The absolute configuration of the following compound is -** 

(1) 2S, 3R (2) 2S, 3S (3) 2R, 3S (4) 2R, 3R

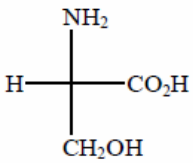
38 **Correct configuration of the following is –** 

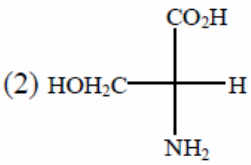
(1) 2S, 3S (2) 2S, 3R (3) 2R, 3S (4) 2R, 3R

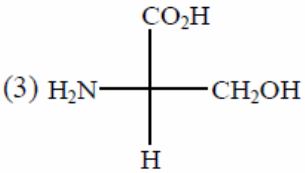
39 **Which of the following is not chiral -**

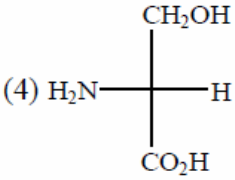
(1) 2-Butanol (2) 2,3-Dibromo pentane (3) 3-Bromo pentane (4) 2-Hydroxy propanoic acid

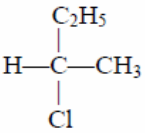
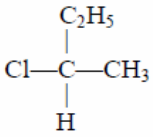
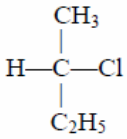
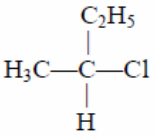
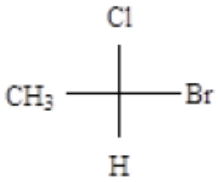
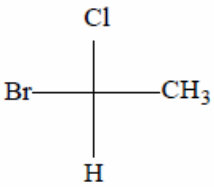
40 **Among the following L-serine is –**

(1) 

(2) 

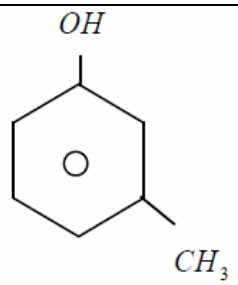
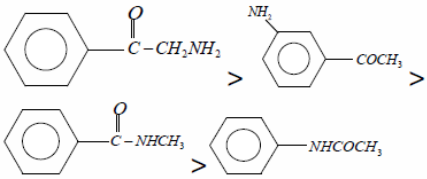
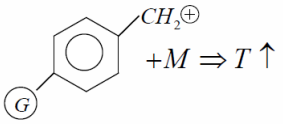
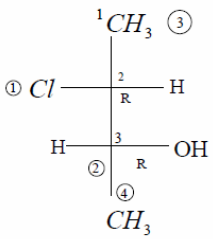
(3) 

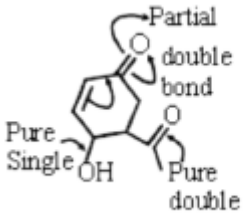
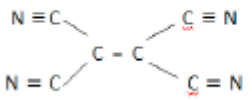
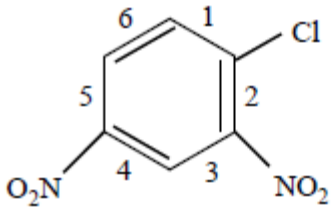
(4) 

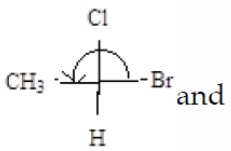
41	**Among the following which one can have a meso form -** (1) $CH_3CH(OH)CH(Cl)C_2H_5$ (2) $CH_3CH(OH)CH(OH)CH_3$ (3) $C_2H_5CH(OH)CH(OH)CH_3$ (4) $HOCH_2CH(Cl)CH_3$
42	**CH_3–CHCl–CH_2–CH_3 has a chiral centre which one of the following represents its R configuration -** (1)  (2)  (3)  (4) 
43	**How many stereoisomer does this molecule have $CH_3CH{=}CHCH_2CHBrCH_3$** (1) 8 (2) 2 (3) 4 (4) 6
44	The relationship between the structures shown below is   1) Enantiomers 2) Identical compounds 3) Structural isomers 4) Conformational isomers

KEY

1	**ANS 4**
2	**ANS 1**
3	**ANS 3**
4	**ANS-1** Aromatic greater than hyper conjugation
5	**ANS-1** $-CH_3 \downarrow$acidic strength$-NO_2 \uparrow$the acidic strength
6	**ANS-2** III on dehydration gives benzene which is aromatic and stable II undergoes readily than I due to stability of carbocation formed as intermediate. IV does not undergo dehydration readily
7	**ANS-2** Electron withdrawing groups are meta directing groups
8	**ANS 3**
9	**ANS 2**
10	**ANS 2**
11	**ANS-3** A > B > C > D
12	**ANS-4**

	
13	**ANS-2** $B > A > C$
14	**ANS-3** $CH_3.CH = CH.\overset{\overset{\large O}{\|}}{C}.CH_3$
15	**ANS-2** 120^0
16	**ANS-2** Resonance structure which contain atoms with Octet configuration is more stable. More E.N. atom with –ve charge is more stable than less E.N. atom with –ve charge
17	**ANS-4** $-I \uparrow \rightarrow B.N \downarrow$ $+I \uparrow \rightarrow B.N \uparrow$ $-M \uparrow \rightarrow B.N \downarrow$ $+M \downarrow \rightarrow B.N \uparrow$ 
18	**ANS-2**  $+M \Rightarrow T \uparrow$ The stability of $(C^{\oplus})$ carbocation is increased by +M group and decreased by -M group
19	**ANS-4** 

20	**ANS-3**
21	**ANS-2** : (2) $\overset{1}{CH_2}-\overset{2}{CH}-\overset{3}{CH_2}$ (CN, CN, CN) propane 1,2,3 - tricarbonitrile
22	**ANS-2**
23	**ANS-2**
24	**ANS-3**
25	**ANS-3** (3)  Bond length –>==>== ∴ order is :- b > a > c
26	**ANS-2**
27	**ANS-2**
28	**ANS-2** : (2)  A = Sp^2 hybridized C atoms B = SP hybridized C atoms C = No of π bonds : 9
29	**ANS-1** : (1)  1-Chloro-2, 4-dinitro benzene
30	**ANS-3** : (3) $CH_3-\underset{CH_3}{CH}-\underset{CH_3}{CH}-CH_3$
31	**ANS-1**
32	**ANS-4**
33	**ANS-2**
34	**ANS-3**
35	**ANS-1**
36	**ANS-2**
37	**ANS-2**
38	**ANS-1**

39	**ANS-3**
40	**ANS-1**
41	**ANS-2**
42	**ANS-2**
43	**ANS-3**
44	**ANS-1** Sol:  and