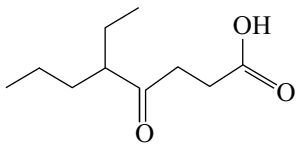
CHAPTER
10

Nomenclature

Question Bank

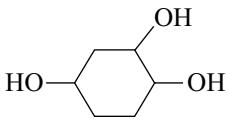
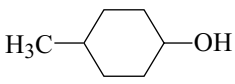
Single and Multiple-choice Type

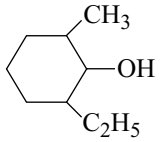
1. The IUPAC name of the compound shown here is



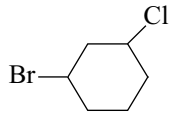
(a) 5-Ethyl-1-hydroxyoctan-1,4-dioic acid
(b) 2-Carboxyethyl-3-hexyl ketone
(c) 3-(3-Hexylcarbonyl) propanoic acid
(d) 5-Ethyl-4-ketooctanoic acid

2. Which of the following compounds are not correctly matched?

Compound	IUPAC name
(a) 	Cyclohexane-1,2,4-triol
(b) 	4-Methylcyclohexanol

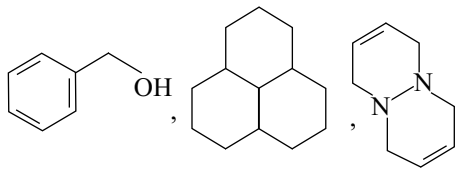
(c) 

2-Ethyl-6-methylcyclohexanol

(d) 

3-Bromo-1-chlorocyclohexane

3. The no. of secondary C-atoms present in the following compounds respectively is

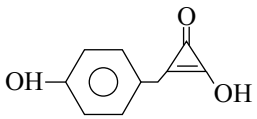


(a) 7, 9, 4 (b) 5, 12, 8 (c) 6, 9, 8 (d) 5, 9, 4

4. The organic compound (Cyclohex-3-enyl) 2-ethyl cyclobutanecarboxylate does not contains

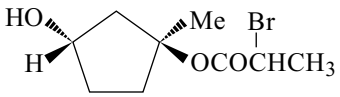
(a) two 3°-carbon atoms
(b) two 1°-carbon atoms
(c) 9 secondary C-atoms
(d) one 1°-carbon atoms

5. The IUPAC name of the compound given below is

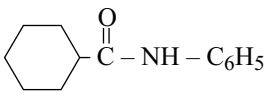


(a) 2-Hydroxy-3-(4′-hydroxyphenyl) cyloprop-2-en-1-one
(b) 2-Hydroxy-3-(4′-hydroxyphenylmethyl) cyloprop-2-en-1-one
(c) 4-(2′-Hydroxy-3′-oxocycloprop-1′-enylmethyl) phenol
(d) 4-(1′-Hydroxy-3′-oxocycloprop-1′-enylmethyl) phenol

6. The correct IUPAC name of the compound is



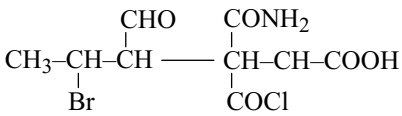
(a) 2-Bromopropyl-3-hydroxy-1-methylcyclopentane carboxylate
(b) 3′-Hydroxy-1′-methylcyclopentyl-2-bromopropanoate
(c) 1′-Hydroxy-3′-methylcyclopentyl-2-brompropanoate
(d) None of these

7. The IUPAC name of 

is

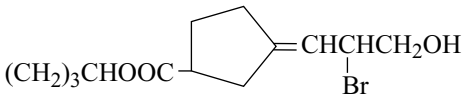
(a) N-Cyclohexylbenzamide
(b) N-Phenyl-N-cyclohexylmethanamide
(c) N-phenylcyclohexane carboxamide
(d) N-Cyclohexyl-N-phenylmethyl amide

8. The IUPAC name of the given compound is



(a) 2-Bromo-4-carbamoyl-5-chloroformyl-3-formylhexanoic acid
(b) 5-Bromo-3-carbamoyl-3-chloroformyl-4-formylhexanoic acid
(c) 4-Formyl-2-chloroformyl-3-carbamoyl-5-bromohexanoic acid
(d) 2-Chloroformyl-3-carbamoyl-4-formyl-5-bromohexanoic acid

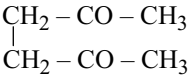
9. The correct IUPAC name of the compound given below is

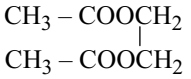


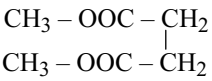
(a) 3-(3′-isopropoxycarbonyl cyclopentylidene) propan-1-ol
(b) 3-(2′-Bromo-3′-hydroxypropylidene) cyclopentanecarboxylate
(c) Isopropyl-3-(2′-bromo-3′-hydroxypropylidenyl) cyclopentanecarboxylate
(d) Isopropyl-3-(2′-bromo-3′-hydroxypropylidene) cyclopentanecarboxylate

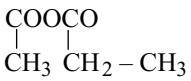
10. IUPAC name of isopentyl alcohol is
(a) 1-Hydroxy-2-methyl pentane
(b) 3-Methyl butan-1-ol
(c) 2-Methyl propanol
(d) 2-Methyl-2-butanol

11. Which of the following structure represent Dimethyl butanedioate?

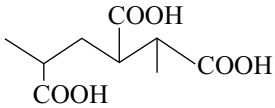
(a) 

(b) 

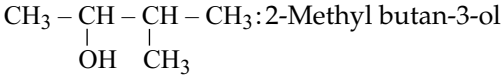
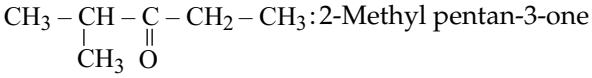
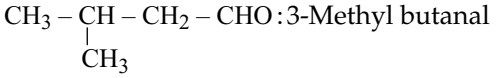
(c) 

(d) 

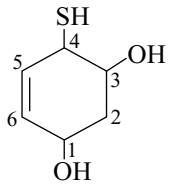
12. IUPAC name of the following compound is

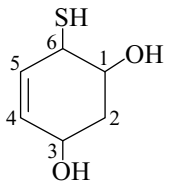


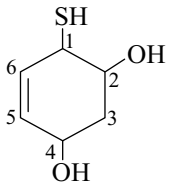
(a) 2-(1-carboxyethyl)-4-methyl pentanoic acid
(b) 3,5-Dicarboxy-2-methyl hexanoic acid
(c) 2,4,5-Hexane tricarboxylic acid
(d) 2,3,5-Hexane tricarboxylic acid

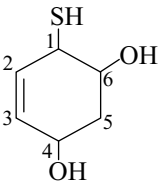
13. Which of the following compound has incorrect IUPAC nomenclature?
(a) $CH_3CH_2–CH_2–COOC_2H_5$: Ethyl butanoate
(b)  : 2-Methyl butan-3-ol
(c)  : 2-Methyl pentan-3-one
(d)  : 3-Methyl butanal

14. Select the structure with correct numbering for the IUPAC name of the given compound.

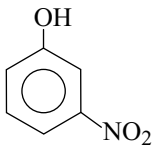
(a) 

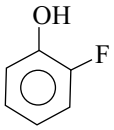
(b) 

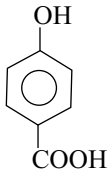
(c) 

(d) 

15. In which of the following H-bonding is responsible for low volatility?

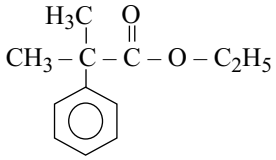
(a) 

(b) 

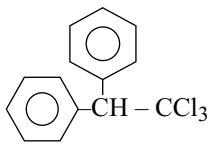
(c) 

(d) None of these

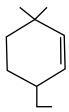
16. Which of the following is not correctly matched?

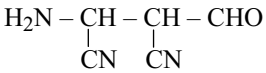
(a) 

Ethyl-2-methyl-2-phenyl propanoate

(b) 

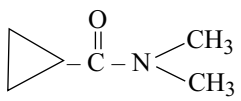
1,1,1-Trichloro-2,2-diphenyl ethane

(c) 
6-Ethyl-3,3-dimethyl cyclohex-1-ene

(d) 

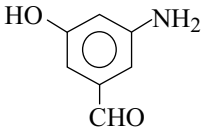
2-Formyl-3-amino-1,4-butane dinitrile

17. IUPAC name of the following compound is

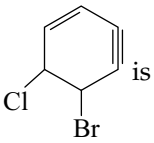


(a) N,N-Dimethyl cyclopropanamide
(b) N-Methyl cyclopropanamide
(c) N,N-Dimethyl cyclopropane carboxamide
(d) N,N-Dimethyl cyclopropolonamide

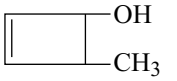
18. Correct IUPAC name of the given compound



(a) 5-amino-3-hydroxy benzene carbaldehyde
(b) 3-amino-5-formyl benzenol
(c) 3-amino-5-hydroxy benzaldehyde
(d) 3-formyl-5-hydroxy aniline

19. The IUPAC name of the given structure  is

(a) 5-Bromo-6-chloro cyclohex-1-en-3-yne
(b) 6-Bromo-5-chloro cyclohex-1-ene-3-yne
(c) 6-Bromo-5-chloro cyclohex-3-ene-1-yne
(d) 4-Bromo-3-chloro cyclohex-1-ene-5-yne

20. The IUPAC name of  is

(a) 3-Methyl cyclobut-1-ene-2-ol
(b) 2-Methyl cyclobut-3-ene-1-ol
(c) 4-Methyl cyclobut-1-ene-3-ol
(d) 4-Methyl cyclobut-2-en-1-ol

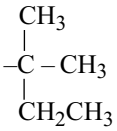
21. Correct name for $(C_2H_5)_2C = C(CH_3)CH_2CO_2H$
(a) 4, 4-Diethyl-3-methyl-3-butenoic acid
(b) 4-Ethyl-3-methyl-3-hexenoic acid
(c) 3-Ethyl-4-methyl-3-hexenoic acid
(d) 3-Ethyl-4-methyl-3-hexen-6-oic acid

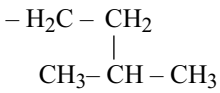
22. Which statement is incorrect in the following?
(a) Methyl acetate is the first higher homologue of methyl formate.
(b) Propanoic acid and propionic acid are identical.
(c) Vinyl alcohol is the lower homologue of propionaldehyde.
(d) CH_3–NH–CH_2–CH_3 is the lower homologue of $CH_3 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - NH - CH_3$.

23. Match the following

(a) $-\underset{\displaystyle CH_3}{\underset{|}{CH}} - \underset{\displaystyle CH_3}{\underset{|}{CH_2}}$ (i) Isobutyl

(b) $-CH_2 - \underset{\displaystyle CH_3}{\underset{|}{\underset{\displaystyle CH_3}{\underset{|}{CH}}}}$ (ii) Tert-pentyl

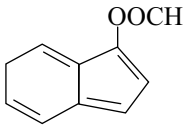
(c)  (iii) Isopentyl

(d)  (iv) Sec. butyl

(a) a - ii; b - iv; c - ii; d - iii
(b) a - iv; b - i; c - iii; d - ii
(c) a - iv; b - i; c - ii; d - iii
(d) a - iv; b - ii; c - i; d - iii

24. Number of C-atoms in first higher homologue of first member of ester family is
(a) 5 (b) 4 (c) 3 (d) 2

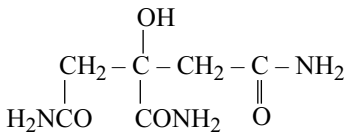
25. In a given compound if number of σ- and π-bonds are X and Y, respectively then (X + Y) will be



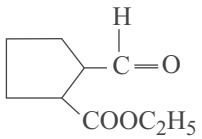
(a) 28 (b) 26 (c) 27 (d) 24

26. Which statement is correct in the following?
(a) Alicyclic compounds are acyclic compounds.
(b) In secondary amine, nitrogen is attached to 2° carbon atom.
(c) 1°, 2°, 3° amines are homologues of each other.
(d) $HCOOCH_3$ and CH_3COOH are not homologues of each other.

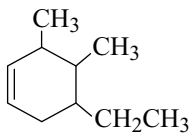
27. The correct systematic IUPAC name of the given compound is



(a) 3-Carbamoyl-3-hydroxybutanediamide
(b) 2-Hydroxypropane-1,2,3-tricarbamoyl
(c) 2-Hydroxypropane-1,2,3-tricarboxamide
(d) 2-Bis(carbamoyl)-2-hydroxyethanamide

28. The correct name for  is

(a) 2-Oxocyclopentanecarboxylate
(b) 2-Formylcyclopentanecarboxylate
(c) Ethyl-2-formylcyclopentanecarboxylate
(d) Ethyl-2-oxocyclopentanecarboxylate

29. The IUPAC name of  is

(a) 2, 3-Methyl-1-ethylcyclohex-4-ene (b) 5-Ethyl-3, 4-dimethylcyclohex-1-ene
(c) 4-Ethyl-5, 6-dimethylcyclohex-1-ene (d) 1-Ethyl-2, 3-dimethylcyclohex-4-ene

30. Which of the following names is correct?
(a) 4, 4-Dimethyl-3-ethylpentane (b) 3-Methyl-4-oxobutanoic acid
(c) 1-Ethyl-2-methylpent-4-ene (d) Bicyclo[1.2.3]heptane

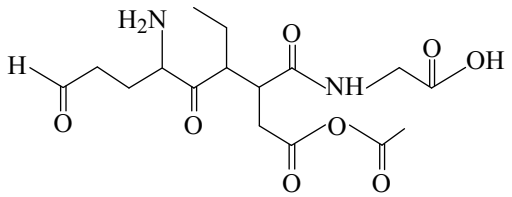
31. IUPAC name of the compound $OHC - CH_2 - CH_2 - \underset{\displaystyle CH_2 - CHO}{\underset{|}{CH}} - CH_2 - CHO$ is
(a) 4, 4-Di (formylmethyl) butanal
(b) 2-(formylmethyl) butane-1, 4-dicarbaldehyde
(c) Hexane-3-acetal-1, 6-dial
(d) 3-(formylmethyl) hexanedial

32. The correct IUPAC name of the following compound is

$$CH_3 - CH - \underset{\displaystyle CH_3}{\underset{|}{\overset{\displaystyle C_2H_5}{\overset{|}{C}}}} - CH_2 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - CH_3$$

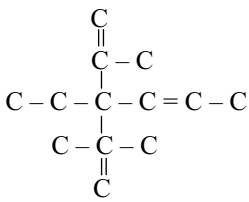
(a) 3-Ethyl-3,5,-dimethylhexane (b) 4-Ethyl-2,4,-dimethylhexane
(c) 2,4-Dimehtyl-4-ethylhexane (d) 4-Ethyl-2,4,-dimethylhexene

33. The number of functional groups present in the following compounds is



(a) 5 (b) 7 (c) 6 (d) 8

34. Write the IUPAC name of the following compound

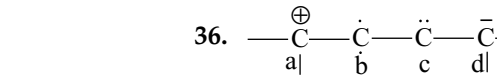


(a) 3-(1,1-dimethylethenyl)-3-ethyl-2-methyl-1,4 hexadiene
(b) 3-ethyl-2-methyl-3-(1,1-dimethylethenyl)-1,4 hexadiene
(c) 3-ethyl-2-2-dimethyl-3-(1-methylethenyl)-1,4 hexadiene
(d) 3-ethyl-3-(1-methylethenyl)-2-2-dimethyl-1,4 hexadiene

35. Hybridization of which atom changes in the following reaction?

$$C_6H_5 - \underset{\displaystyle N - OH}{\underset{\|}{C}} - CH_3 \xrightarrow{PCl_5} C_6H_5 - NH - \overset{\displaystyle O}{\overset{\|}{C}} - CH_3$$

(a) C and O (b) C and N
(c) N and O (d) No change in the hybridization of any atom

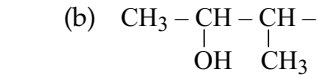
36.  ; carbon atoms a, b, c and d are in

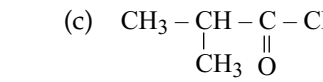
(a) sp^2, sp^3, sp^2 and sp^3 hybrid states respectively
(b) sp, sp^2, sp and sp^3 hybrid states respectively
(c) sp^2, sp, sp^2 and sp^3 hybrid states respectively
(d) sp^2, sp^2, sp^2 and sp^3 hybrid states respectively

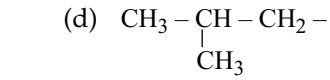
37. Ratio of π- and σ-bonds in Ph–COOH will be
(a) 5:3 (b) 3:5 (c) 3:16 (d) 4:15

38. Which of the following compound has incorrect IUPAC nomenclature?

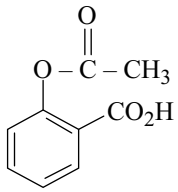
(a) $CH_3CH_2–CH_2–COOC_2H_5$: Ethyl butanoate

(b)  : 2-Methyl butan-3-ol

(c)  : 2-Methyl pentan-3-one

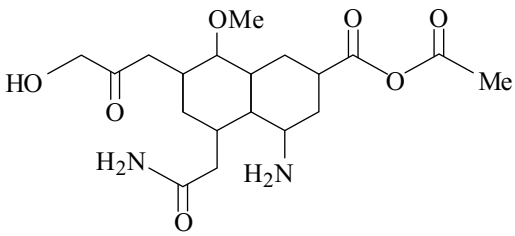
(d)  : 3-Methyl butanal

39. Identify incorrect matching in the following
(a) Allyl alcohol-Prop-2-en-1-ol (b) Vinyl alcohol-Ethenol
(c) Propargyl alcohol-But-3-yn-1-ol (d) Acrylaldehyde-2-Propenal

40. IUPAC name of the following compound 

(a) Aspirin (b) 2-Acetyl benzoic acid
(c) Acetyl salicylic acid (d) 2-Acetoxy benzoic acid

41. How many functional groups are present in the given molecule?



(a) 4 (b) 5 (c) 6 (d) 7

42. What is the ratio of number of σ- and π-bonds in the molecule $HC(=O) - CH_2CH_2 - COOH$?

(a) 5 (b) 6 (c) 4 (d) none of these

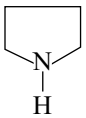
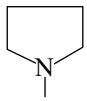
43. Which is not a first member of given homologous series?

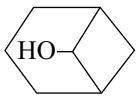
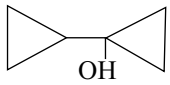
(a) Alkadiene $CH_2=C=CH_2$ (b) Alkenyne $HC\equiv C-CH=CH_2$

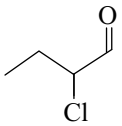
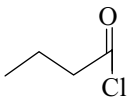
(c) Ethyl ester $CH_3CH_2 - O - C(=O) - CH_3$ (d) Ketone $CH_3 - C(=O) - CH_3$

44. Consider the given statements

(i) Acetone and acetaldehyde are homologues.

(ii)  is secondary amine while  is a tertiary amine.

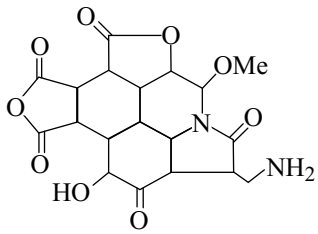
(iii)  is a secondary alcohol while  is a tertiary alcohol.

(iv)  and  both have different functional groups

Which is not incorrect?

(a) i, ii, iii (b) ii, iii, iv (c) i, ii, iv (d) i, iii, iv

45. Number of functional groups present in the given compound is

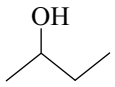
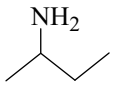


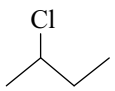
(a) 5 (b) 6 (c) 7 (d) 8

46. Which of the following compounds has isopropyl group?

(a) 2,2,3,3-Tetramethyl pentane (b) 2,2-Dimethyl pentane
(c) 2,2,3-Trimethyl pentane (d) 2-Methyl pentane

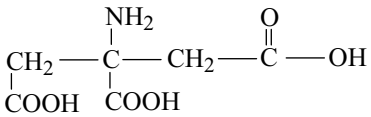
47. What is the order of solubility in water of the following compounds?

(i)  (ii) 

(iii)  (iv) 

(a) i > ii > iii > iv (b) iii > iv > i > ii
(c) iv > i > iii > ii (d) iv > i > ii > iii

48. The correct IUPAC name of the given compound is

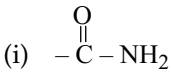
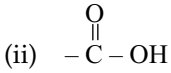
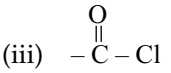
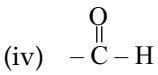
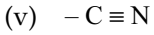


(a) 3-Carboxy-3-hydroxy butane dioic acid
(b) 2-Amino propane-1,2,3-tricarboxylic acid
(c) 3-Amino butanedioic acid
(d) 2-Bis(carboxymethyl)-2-hydroxy ethanoic acid

49. Total number of isomers of group C_5H_{11} is
(a) 5 (b) 3 (c) 8 (d) 9

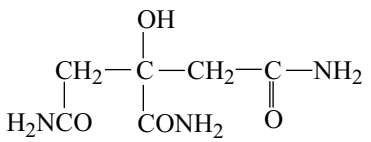
50. Write the correct name from the incorrect name 2,3-, dichloro-2,4-dibromohept-4-ene
(a) 2, 4-dibromo-2,3-dichloro hept-4-ene
(b) 4, 6-dibromo-5,6-dichloro hept-3-ene
(c) 4, 6-dibromo-5,6-dichloro hept-4-ene
(d) 5, 6-dichloro-4,6-dibromo hept-3-ene

51. In IUPAC nomenclature of compounds

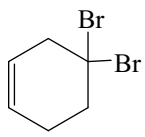
(i) 
(ii) 
(iii) 
(iv) 
(v) 

The priority order of group is/are
(a) ii > i > iii > iv > v (b) ii > iii > i > v > iv
(c) ii > iii > v > i > iv (d) ii > iii > i > iv > v

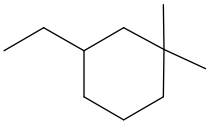
52. The correct systematic IUPAC name of the given compound is



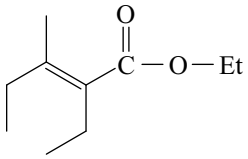
(a) 3-Carbamoyl-3-hydroxybutanediamide
(b) 2-Hydroxypropane-1,2,3-tricarbamoyl
(c) 2-Hydroxypropane-1,2,3-tricarboxamide
(d) 2-Bis(carbamoyl)-2-hydroxyethanamide

53. 

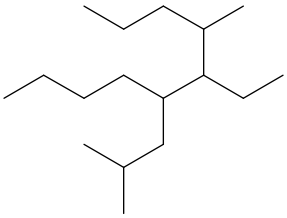
(a) trans-1,1-dibromocyclohexene
(b) 1,1-dibromocyclohex-3-ene
(c) 3,3-dibromocyclohexene
(d) 4,4-dibromocyclohexene

54. 

(a) 1-Ethyl-3,3-dimethylcyclohexane
(b) 3,3-Dimethyl-1-ethylcyclohexane
(c) 3-Ethyl-1,1-dimethylcyclohexane
(d) 1,1-Dimethyl-3-ethylcyclohexane

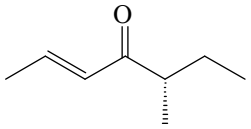
55. 

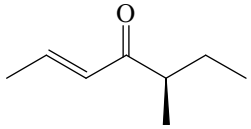
(a) ethyl 2-ethyl-3-methyl-2-butenoate
(b) O,2-diethyl-3-methyl-2-butenaote
(c) 1-ethoxy-2-ethyl-3-methyl-2-butenal
(d) 2-methyl-2-pentenyl propanaote

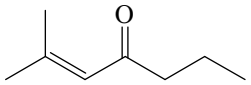
56. 

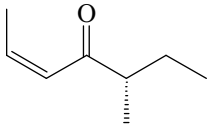
(a) 4-Isobutyl-3-pentyloctane
(b) 5-Ethyl-4-methyl-6-(2-methylpropyl)decane
(c) 6-Ethyl-7-methyl-5-(methylpropyl)decane
(d) 4-Butyl-5-ethyl-2,6-dimethylnonane

57. (2E, 5R)-5-methylhept-2-en-4-one

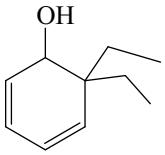
(a) 

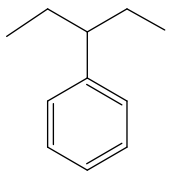
(b) 

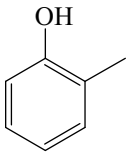
(c) 

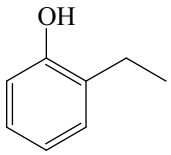
(d) 

58. 2-Ethylphenol

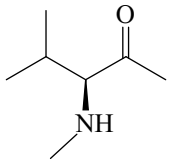
(a) 

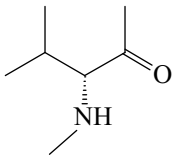
(b) 

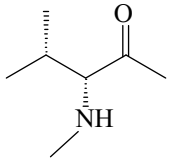
(c) 

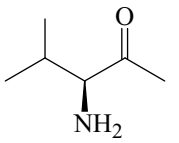
(d) 

59. (S)-(N,4)-dimethyl-3-aminopentan-2-one

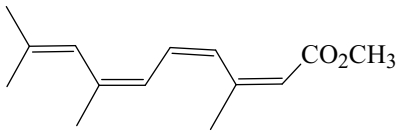
(a) 

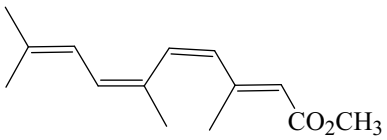
(b) 

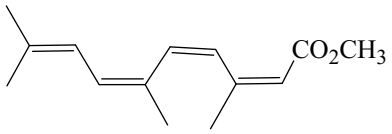
(c) 

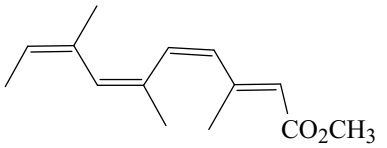
(d) 

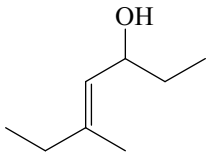
60. Methyl (2Z,4Z,6Z)-3,6,9-trimethyl-2,4,6,8-decatetraenoate

(a) 

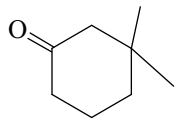
(b) 

(c) 

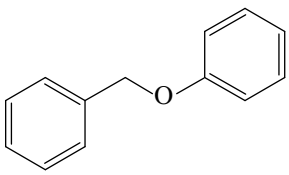
(d) 

61. 

(a) (E)-5-methyl-3-heptanal
(b) (Z)-3-methyl-3-hepten-5-al
(c) (E)-5-methyl-4-hepten-3-ol
(d) (Z)-5-methyl-4-hepten-3-ol

62. 

(a) 5,5-Dimethylcyclohexanol
(b) 3,3-Dimethylcyclohexanone
(c) 1,1-Dimethylcyclohexanone
(d) 3,3-Dimethylcyclohexanal

63. 

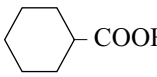
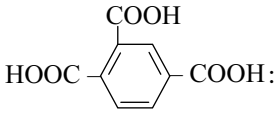
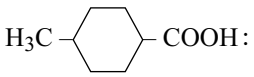
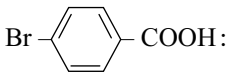
(a) Dibenzyl ether
(b) Benzyl phenyl ether
(c) Benzyl phenyl ester
(d) 3,3-Dibromocyclohexene

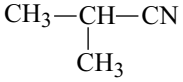
64. Which name is correct for the following compound?

$$CH_3 - \underset{\displaystyle CH_3}{\underset{|}{CH}} - C \equiv N$$

(a) 2-Methyl propanenitrile
(b) Isobutyl cyanide
(c) Isobutyronitrile
(d) Isopropyl cyanide

65. IUPAC name of which of the following compounds is correct?

Compound	IUPAC name
(a) 	Cyclohexanoic acid
(b) 	1,2,4-Benzene tricarboxylic acid
(c) 	4-Methyl cyclohexane carboxylic acid
(d) 	4-Bromobenzoic acid

66. Name(s) of  is/are

(a) Isopropyl cyanide
(b) Sec-propyl cyanide
(c) Isobutyro nitrile
(d) 2-methyl propane nitrile

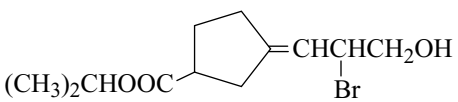
67. In Lassaigne's test, the organic compound is at first fused with sodium metal. The sodium metal is used because
(a) The melting point of sodium is low; so, it is easily fused with organic substances.
(b) Sodium is very much effective to bring about destructive reductions of organic compounds forming ionic inorganic salts such as NaCN, Na_2S and NaX.
(c) All sodium salts are soluble in water.
(d) None of these.

68. Chromatographic technique can be used for separation of
(a) Volatile solids (b) Amino acids (c) Plant pigments (d) Sugars

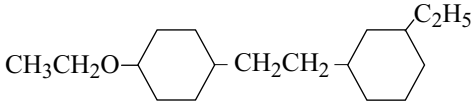
Comprehension Type

Passage 1

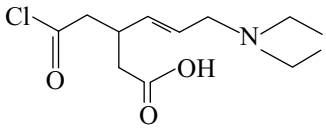
The IUPAC has set guidelines for logical and methodical naming of organic compounds. The complex substituents are written in brackets and their numbering is done separately. The bivalent radicals are named by adding 'idene' to the name of alkyl group. In polyfunctional compounds, all lower priority groups are written as a prefix. Now, name the following compounds.

69.  is

(a) 3-(3′-isopropoxycarbonyl cyclopentylidene) propane-1-ol
(b) 3-(2′-bromo-3′-hydroxypropylidene) cyclopentane carboxylate
(c) Iso-propyl-3-(2′-bromo-3′-hydroxypropylidenyl) cyclopentane carboxylate
(d) Iso-propyl-3-(2′-bromo-3′-hydroxypropylidene) cyclopentane carboxylate

70.  is

(a) 2-(3′-Ethylcyclohexyl)-1-(4′-ethoxycyclohexyl) ethane
(b) 1-Ethyl-3-(2′-(4″-ethoxycyclohexyl) ethyl) benzene
(c) 1-(3′-Ethylcyclohexyl)-2-(4′-ethoxycyclohexyl) ethane
(d) None of these

71.  is

(a) 3-Chlorocarbonyl-6-(N,N-diethylamino) hex-4-ene-1-oic acid
(b) 4-Chlorocarbonyl-3-(N,N-diethylamino) butanoic acid
(c) 3-Chlorocarbonyl-3-(3-N,N-diethylamino prop-1′-enyl) butane-1-oic acid
(d) 3-Chlorocarbonyl methyl-6-(N,N-diethylamino) hex-4-en-1-oic acid

Passage 2

Rules for IUPAC nomenclature of compounds containing one functional group, multiple bonds and substituents are given hereunder.

(a) Select the longest possible chain of carbon atoms containing the functional group and the maximum number of multiple bonds as the parent chain without caring whether it also denotes the longest possible carbon chain or not.
(b) After selecting the parent chain, the numbering should be done in such a way that it gives lower possible number the functional group.
(c) When a chain containing functional groups such as –CHO, –COOH, COOR, –COCl, etc. is present, it is always given number 1 and number 1 is usually omitted from the final name of the compound.
(d) If the organic compound contains a functional group, multiple bond, side chain or substituent, the following order of preference should be followed.

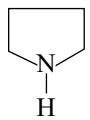
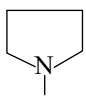
Functional group > Double bond > Triple bond > Substituent

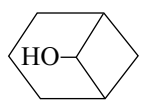
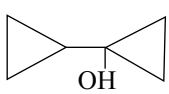
(e) If a compound contains two or more like groups, the numerical prefixes di, tri, tetra, etc. are used and terminal 'e' from the primary suffix is retained.

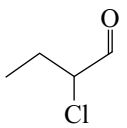
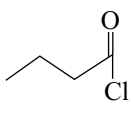
On the basis of the above rules, give answers for the following questions:

72. Consider the given statements

(i) Acetone and acetaldehyde are homologues.

(ii)  is a secondary amine while  is a tertiary amine.

(iii)  is a secondary alcohol while  is a tertiary alcohol.

(iv)  and  both have different functional groups.

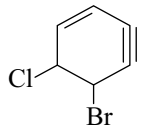
Which is not incorrect?

(a) i, ii, iii
(b) ii, iii, iv
(c) i, ii, iv
(d) i, iii, iv

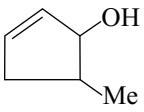
73. Correct IUPAC name from the incorrect name 4-amino-3-hydroxy-2-butene is

(a) 1-Amino-2-hydroxy-2-butene
(b) 4-Amino-2-buten-3-ol
(c) 1-Amino-2-buten-2-ol
(d) 1-Amino-2-butenol

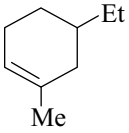
74. Which of the following has incorrect IUPAC name?

(a) 

5-Bromo-6-chloro cyclohex-1-en-3-yne

(b) 

2-Methyl cyclopent-4-en-1-ol

(c) 

5-Ethyl-1-methyl cyclohexene

(d) 

2,4-Dimethyl hexane

Passage 3

Rules for IUPAC nomenclature of compounds containing one functional group, multiple bonds and substituents are given hereunder.

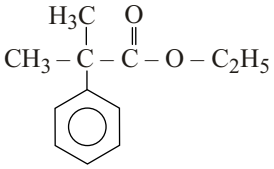
(a) Select the longest possible chain of carbon atoms containing the functional group and the maximum number of multiple bonds as the parent chain without caring whether it also denotes the longest possible carbon chain or not.
(b) After selecting the parent chain, the numbering should be done in such a way that it gives lower possible number for the functional group.
(c) When a chain containing functional groups such as –CHO, –COOH, COOR, –COCl, etc. is present, it is always given number 1 and number 1 is usually omitted from the final name of the compound.
(d) If the organic compound contains a functional group, multiple bond, side chain or substituent, the following order of preference should be followed.

Functional group > Multiple bond > Substituent

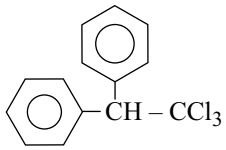
(e) If a compound contains two or more like groups, the numerical prefixes di, tri, tetra, etc. are used and terminal 'e' from the primary suffix is retained.

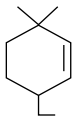
On the basis of the above rules, give answers for the following questions:

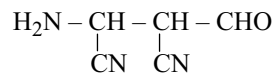
75. Which of the following is not correctly matched?

(a) 

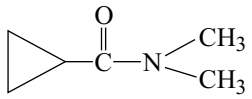
Ethyl-2-methyl-2-phenyl propanoate

(b)  1,1,1-Trichloro-2,2-diphenyl ethane

(c)  6-Ethyl-3,3-dimethyl cyclohex-1-ene

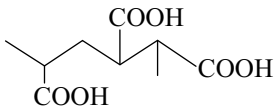
(d)  2-Formyl-3-amino-1,4-butane dinitrile

76. IUPAC name of the following compound is



(a) N,N-Dimethyl cyclopropanamide
(b) N-Methyl cyclopropanamide
(c) N,N-Dimethyl cyclopropane carboxamide
(d) N,N-Dimethyl cyclopropolonamide

77. IUPAC name of the following compound is

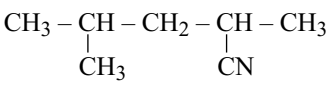


(a) 2-(1-carboxyethyl)-4-methyl pentanoic acid
(b) 3,5-Dicarboxy-2-methyl hexanoic acid
(c) 2,4,5-Hexane tricarboxylic acid
(d) 2,3,5-Hexane tricarboxylic acid

Passage 4

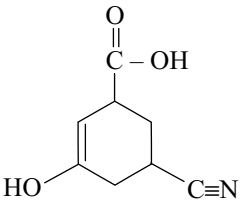
IUPAC system is the most rational and widely used system of nomenclature in organic chemistry. Any given molecule has only one IUPAC name and any given IUPAC name denotes only one molecular structure. Numbering the principal chain order is principal functional group > multiple bond > substituents.

78. IUPAC name of



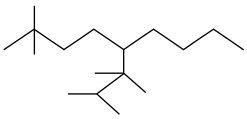
(a) 2-Cyano-4-methylpentane
(b) 2-Methyl-4-cyanopentane
(c) 2,4-Dimethyl pentane nitrile
(d) 2-Dimethyl-4-cyanopentane

79. The IUPAC name of the following compound is



(a) 4-Hydroxy-3-cyano cyclohex-5-ene carboxylic acid
(b) 3-Hydroxy-5-cyano cyclohex-5-enoic acid
(c) 5-Cyano-3-hydroxy cyclohex-2-ene carboxylic acid
(d) 3-Carboxy-5-hydroxycyclohex-5-ene carbonitrile

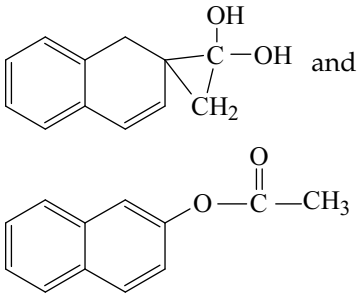
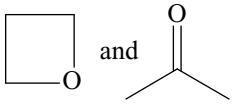
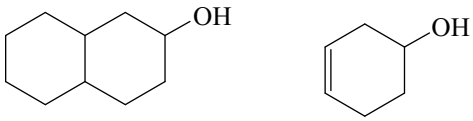
80. The correct IUPAC name of the following compound is

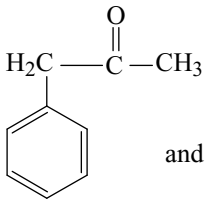
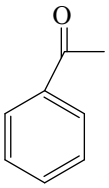


(a) 5-(1′,1′2′-trimethyl propyl)-2-2-dimethyl nonane
(b) 4-Butyl-2,3,3,7,7-pentamethylnonane
(c) 2,3,3,7, 7-Pentamethyl-4-butyloctane
(d) 2,2-Dimethyl-5-(1′,1′,2′ trimethylpropyl)nonane

Matrix Type

81.

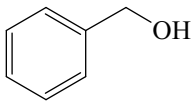
Column I	**Column II**
(a) 	(p) Functional groups are same pair of compound
(b) 	(q) DBE is same
(c) 	(r) Functional groups are different in pair of compound

(d)  and 

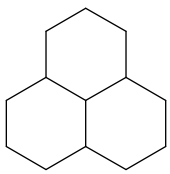
(s) Even number of 2° carbon 'C' atom present in both compounds

(t) Odd number of 2° 'C' atom present in pair of compound in both compounds

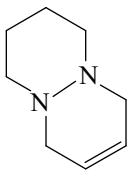
82. Column I **Column II**

(a) 

(p) Odd number of 3° 'C'

(b) 

(q) Odd DBE (double bond equivalents)

(c) 

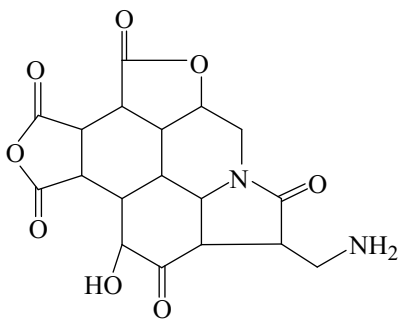
(r) Even DBE (double bond equivalents)

(d) 

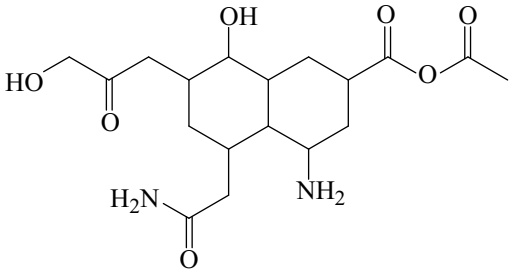
(s) Heterocyclic ring is present

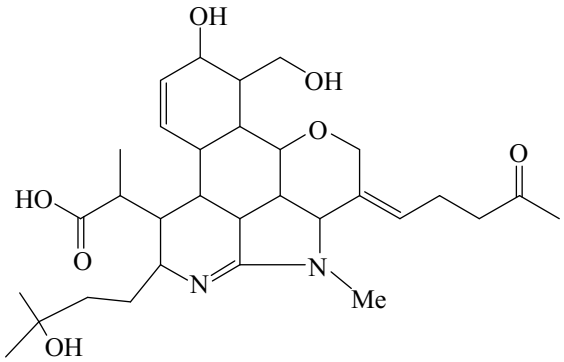
(t) Even number of 2° 'C' atom

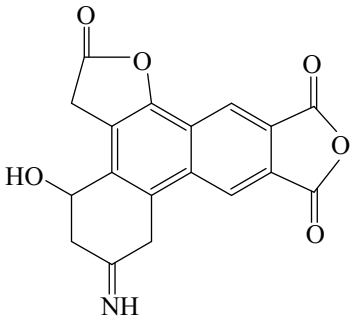
83. Column I **Column II**

(a) 

(p) DU/DBE is odd

(b) 

(c) 

(d) 

(q) DBE/DU is even

(r) Functional groups are odd

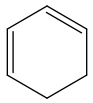
(s) Functional groups are even

(t) Number of 2° 'C' even

(u) Loctore is present as functioanl group

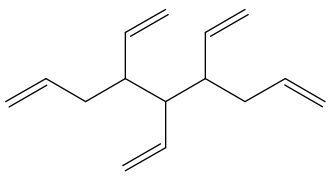
84. **Column I** **Column II**

(a) Cyclohexa-1, 3-diene



(p) DU is odd

(b) 4, 5, 6-Triethenlnona-1, 8-diene



(q) DU is even

(c) Cyclo octa-1, 3, 5-triene

(r) Compound has 1 : 1 : 1 ratio for 1°, 2° and 3° 'C' atoms

(d) 1, 3, 5-trimethyl benzene

(s) Unsaturated compound

Answer Keys

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
d	d	d	b	b	b	c	b	d	b	c	d	b	b	c
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
d	c	c	a	d	b	c	c	c	c	d	c	c	b	b
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
d	b	c	d	d	c	d	b	c	d	c	b	c	b	c
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
d	d	b	c	b	b	c	d	c	a	b	b	d	a	c
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
c	b	b	acd	bcd	abcd	abc	b	d	d	d	b	c	b	d
76	77	78	79	80	81(a)	81(b)	81(c)	81(d)	82(a)	82(b)	82(c)	82(d)	83(a)	83(b)
c	d	c	b	a	r	qrt	pqs	pq	pr	q	qst	qst	pstu	qrt
83(c)	83(d)	84(a)	84(b)	84(c)	85(d)									
qst	qstu	ps	ps	qs	qrs									