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SET 1

1.

The unique ability of carbon to form chains and rings is called –
a) Isomerism b) Hybridisation c) Catenation d) Polymerisation

2.

The tetravalency of carbon is due to –
a) Its small size b) Presence of four valence electrons c) Ability to form ionic bonds d) Presence of lone pairs

3.

In methane (CH_4), carbon is –
a) sp hybridised b) sp^2 hybridised c) sp^3 hybridised d) unhybridised

4.

Which molecule is linear in shape?
a) CH_4 b) C_2H_4 c) C_2H_2 d) NH_3

5.

The greater the s-character of hybrid orbitals, the –
a) Longer the bond b) Stronger the bond c) Weaker the bond d) No effect

6.

Rotation around C=C double bond is –
a) Free b) Restricted c) Possible d) Random

7.

Which of the following has one σ and two π bonds?
a) Ethene b) Ethyne c) Propene d) Benzene

8.

In bond-line formula, the end of each line represents –
a) Hydrogen atom b) Carbon atom c) Oxygen atom d) Nitrogen atom

9.

Which type of model shows actual size and volume of atoms?
a) Framework b) Ball-and-stick c) Space-filling d) Computer model

10.

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Cyclohexane belongs to which class of compounds?
a) Aromatic b) Alicyclic c) Aliphatic d) Heterocyclic

11.

The functional group –OH belongs to –
a) Alcohols b) Aldehydes c) Ketones d) Acids

12.

Members of a homologous series differ by –
a) CH_4 unit b) $–CH_2–$ unit c) $–C_2H_4–$ unit d) $–H_2O–$ unit

13.

The first member of the alkane series is –
a) Ethane b) Methane c) Propane d) Butane

14.

The suffix for alkanes is –
a) -ene b) -yne c) -ane d) -ol

15.

The IUPAC name of $CH_3CH_2CH_3$ is –
a) Methane b) Propane c) Ethane d) Butane

16.

The IUPAC name of $(CH_3)_2CHCH_3$ is –
a) n-Butane b) Isobutane c) But-2-ene d) 2-Methylpropane

17.

The prefix for a three-carbon chain is –
a) Meth- b) Eth- c) Prop- d) But-

18.

The common name of CH_3COOH is –
a) Formic acid b) Acetic acid c) Citric acid d) Benzoic acid

19.

The functional group –CHO belongs to –
a) Alcohol b) Aldehyde c) Ketone d) Carboxylic acid

20.

An organic compound containing –COOH group is –
a) Ketone b) Alcohol c) Acid d) Aldehyde

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21.

The suffix used for aldehydes in IUPAC system is –
a) -one b) -al c) -oic acid d) -ol

22.

Which of the following is aromatic?
a) Cyclohexane b) Benzene c) Hexane d) Propyne

23.

Toluene is –
a) Methylbenzene b) Ethylbenzene c) Phenol d) Aniline

24.

Ortho-, meta- and para- designations are used for –
a) Alkanes b) Alkenes c) Substituted benzenes d) Cycloalkanes

25.

Phenyl group is represented as –
a) C_2H_5- b) C_6H_5- c) CH_3- d) C_3H_7-

26.

Compounds having same molecular formula but different structure are –
a) Isotopes b) Isomers c) Allotropes d) Polymers

27.

C_4H_{10} has how many chain isomers?
a) 1 b) 2 c) 3 d) 4

28.

Propan-1-ol and propan-2-ol are –
a) Functional isomers b) Position isomers c) Chain isomers d) Optical isomers

29.

CH_3CHO and CH_3COCH_3 are –
a) Metamers b) Functional isomers c) Position isomers d) Chain isomers

30.

The species CH_3^+ is called –
a) Carbanion b) Carbocation c) Free radical d) Neutral molecule

31.

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In carbanion, carbon is –
a) sp b) sp^2 c) sp^3 d) Unhybridised

32.

Carbocations are stabilised by –
a) Inductive effect b) Hyperconjugation c) Resonance d) All of these

33.

The order of carbocation stability is –
a) 3° > 2° > 1° b) 1° > 2° > 3° c) 2° > 1° > 3° d) 3° < 2° < 1°

34.

Species containing an unpaired electron is –
a) Carbocation b) Carbanion c) Free radical d) Ion pair

35.

A reagent that donates an electron pair is –
a) Electrophile b) Nucleophile c) Free radical d) Catalyst

36.

BF_3 acts as –
a) Electrophile b) Nucleophile c) Free radical d) Lewis base

37.

The shift of σ-electrons along a chain due to a polar group is –
a) Inductive effect b) Resonance c) Hyperconjugation d) Electromeric effect

38.

The inductive effect decreases with –
a) Distance from group b) Polarity c) Size of group d) Electronegativity

39.

When electrons are delocalised in π-bonds, the phenomenon is –
a) Resonance b) Hyperconjugation c) Electromeric effect d) Inductive effect

40.

Resonance structures –
a) Exist independently b) Are imaginary forms c) Show different compounds d) Have different atoms

41.

The delocalisation of σ-electrons of C–H bond into a π-system is –
a) Resonance b) Inductive effect c) Hyperconjugation d) Electromeric effect

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42.

The polarity developed in nitrobenzene due to $–NO_2$ group is –
a) +R b) –R c) +I d) –I

43.

The +R effect is shown by –
a) $–NO_2$ b) –COOH c) –OH d) –CN

44.

Temporary electron displacement in presence of a reagent is –
a) Inductive b) Resonance c) Electromeric d) Hyperconjugation

45.

When π-electrons are completely transferred towards attacking reagent, the effect is –
a) +E b) –E c) +I d) –I

46.

In propene, hyperconjugation involves –
a) $\sigma \rightarrow \sigma^*$ b) $\sigma \rightarrow \pi^*$ c) $\pi \rightarrow \pi^*$ d) $n \rightarrow \sigma^*$

47.

The order of stability of alkyl free radicals is –
a) 3° > 2° > 1° b) 1° > 2° > 3° c) 2° > 3° > 1° d) 3° = 2° > 1°

48.

Purification of camphor can be done by –
a) Distillation b) Crystallisation c) Sublimation d) Filtration

49.

The technique used to separate liquids having close b.p. is –
a) Simple distillation b) Fractional distillation c) Steam distillation d) Vacuum distillation

50.

The purity of an organic compound is usually checked by –
a) Colour b) Odour c) Melting or boiling point d) Weight

ANSWERS – SET 1

1-c 2-b 3-c 4-c 5-b 6-b 7-b 8-b 9-c 10-b
11-a 12-b 13-b 14-c 15-b 16-d 17-c 18-b 19-b 20-c
21-b 22-b 23-a 24-c 25-b 26-b 27-b 28-b 29-b 30-b

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31-c	32-d	33-a	34-c	35-b	36-a	37-a	38-a	39-a	40-b
41-c	42-b	43-c	44-c	45-a	46-b	47-a	48-c	49-b	50-c