

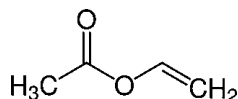
CHEMISTRY SAMPLE PAPER 2

TOPIC: GENERAL ORGANIC CHEMISTRY

1. The IUPAC name for isobutyl chloride is: -

- (1) 2-Methyl-2-chloro butane (2) 2-Chloro-2-methyl butane
(3) 1-Chloro-2-methyl propane (4) 2-Methyl-3-chloro propane

2. Common name of the given compound is:



- (1) vinyl acetate (2) acryl acetate
(3) methyl acrylate (4) Vinyl ethanoate

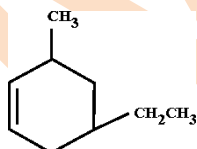
3. Which of the following homologous series has incorrect general formula: -

- (1) Alkyne $C_n H_{2n-2}$ (2) Alkanol $C_n H_{2n+2} O$
(3) Alkanal $C_n H_{2n+1} O$ (4) Carboxylic acid $C_n H_{2n} O$

4. A primary amine has amino group (-NH₂) attached to: -

- (1) A primary carbon atom only (2) A secondary carbon atom only
(3) A tertiary carbon atom only (4) A primary, secondary or tertiary carbon atom

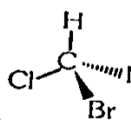
5. The IUPAC name of



is: -

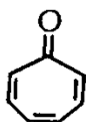
- (1) 1-Methyl-5-ethyl cyclohex-2-ene (2) 5-Ethyl-3-methyl cyclohex-1-ene
(3) 4-Ethyl-6-methyl cyclohex-1-ene (4) 1-Ethyl-5-methyl cyclohex-3-ene

6. Incorrect statement is:



- (1) Iodine atom is away from observer and-Cl is on the plane of paper.

(2) Alicyclic are those compounds which have similar properties of aliphatic compounds



- (3) is benzenoid structure

(4) Naphthalene is example of fused benzene ring

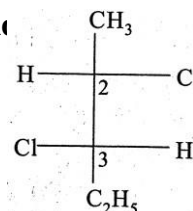
7. The number of sigma (s) and pi (p) bonds in pent-2-en-4-yne is: -

- (1) 10 s bonds and 3p bonds (2) 8 s bonds and 5p bonds
(3) 11 s bonds and 2p bonds (4) 13 s bonds and no p bond

8. The simplest alkanol exhibiting optical activity is

- (1) n-butyl alcohol (2) Isobutyl alcohol
(3) s-butyl alcohol (4) t-butyl alcohol

9. The absolute configuration of the following compound



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

10. Among the following the most stable compound is

- (1) Cis-1,2-cyclohexanediol (2) Trans-1,2-cyclohexanediol
(3) Cis-1,3-cyclohexanediol (4) Trans-1,3-cyclohexanediol

11. The number of sigma and pi-bonds present in pent-4-ene-1-yne is

- (1) 10,3 (2) 4,9
(3) 3,10 (4) 9,4

12. If 0.189 g of a chlorine containing organic compound gives 0.287 g of silver chloride, then the percentage of chlorine in the organic compound

- (1) 35.47 (2) 35.57
(3) 37.57 (4) 45.37

13. The enolic form of acetone contains:

- (1) 9 sigma bonds, 1 pi bond and 2 lone pairs (2) 8 sigma bonds, 2 pi bond and 2 lone pairs
(3) 10 sigma bonds, 1 pi bond and 2 lone pairs (4) 9 sigma bonds, 2 pi bond and 1 lone pair

14. What is the possible number of optically active isomers for a compound containing n dissimilar Asymmetric carbon atoms if the molecule has no plane of symmetry?

- (1) n^2 (2) 2^n
(3) $n+1$ (4) $n+2$

15. An organic compound containing C, H and N gave the following analysis: C = 40%, H = 13.3% and

N = 46.67%. Its empirical formula would be.

- (1) CHN (2) C₂H₂N
(3) CH₄N (4) C₂H₇N

16. 0.2 g of an organic compound on complete combustion produces 0.18 g of water then the percentage of hydrogen in it is

- (1) 5 (2) 10
(3) 15 (4) 20

17. Which of the following are aromatic compounds?

(i) Naphthalene (ii) Benzene (iii) Cyclohexane (iv) Tropylium carbocation

(1) (ii), (iii)

(2) (i), (ii)

(3) (i), (ii), (iv)

(4) (i), (ii), (iii)

18. The compound formed in the positive test for nitrogen with the Lassaigne's solution of an organic compound is

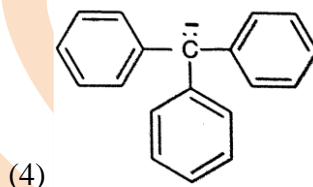
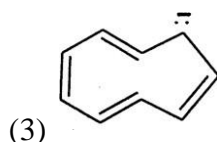
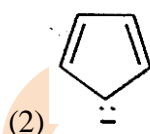
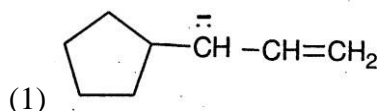
(1) $\text{Fe}_4[\text{Fe}(\text{CN})_5\text{NOS}]$

(2) $\text{Na}_3[\text{Fe}(\text{CN})_6]$

(3) $\text{Fe}(\text{CN})_3$

(4) $\text{Na}_4[\text{Fe}(\text{CN})_5\text{NOS}]$

19. The most stable carbanion is



20. How will you separate a solution (miscible) of benzene + CHCl_3 ?

(1) Sublimation

(2) Filtration

(3) Distillation

(4) Crystallisation

21. Kjeldahl method for estimation of nitrogen is not applicable to

(1) pyridine

(2) hexamethylene diamine

(3) propan-1-amine

(4) 2-phenylethanamine

22. Which pairs of species have same percentage of carbon?

(1) HCOOCH_3 and $\text{C}_{12}\text{H}_{22}\text{O}_{11}$

(2) CH_3COOH and $\text{C}_6\text{H}_{12}\text{O}_6$

(3) CH_3COOH and $\text{C}_2\text{H}_5\text{OH}$

(4) $\text{C}_6\text{H}_{12}\text{O}_6$

23. For the purification, isolation and separation of organic compounds, the latest technique followed is.

(1) Chromatography

(2) steam distillation

(3) fractional crystallisation

(4) sublimation

24. Mesomeric effect involves

(1) delocalisation of π -electrons

(2) delocalisation of σ -electrons

(3) partial displacement of electrons

(4) delocalisation of σ & π -electrons

25. Which of the following alkene is most stable ($R=CH_3$)?

- (1) $R_2C=CR_2$ (2) $R-CH=CR_2$
(3) $R-CH=CH-R$ (4) $R-CH=CH_2$

26. Acetone and propanal are

- (1) functional isomers (2) position isomers
(3) geometrical isomers (4) optical isomers

27. The number of optical isomers of the compound $CH_3CHBrCHBrCOOH$ is

- (1) 0 (2) 1
(3) 3 (4) 4

28. The IUPAC name of $CH_3CH_2OCH(CH_3)_2$ is

- (1) isopropoxyethane (2) 2-methoxybutane
(3) 1-methyl-1-methoxyethane (4) 2-ethoxypropane

29. Systematic name of $Ph-CH_2-COOH$ is

- (1) benzene acetic acid (2) phenylmethyl carboxylic acid
(3) 2-phenylethanoic acid (4) 2-phenylmethanoic acid

30. The ratio of number of sigma and pi-bonds in 1-buten-3-yne is

- (1) 6/4 (2) 4
(3) 7/3 (4) 1

31. In hexa-1,3-dien-5-yne the number of C-C π , C-C and C-H σ bonds respectively are

- (1) 5,4 and 6 (2) 6,3 and 5
(3) 5,3 and 6 (4) 6,4 and 5

32. The presence of halogen, in an organic compound, is detected by

- (1) Iodoform test (2) Silver nitrate test
(3) Beilstein's test (4) Milon's test

33. The best method for the separation of naphthalene and benzoic acid from their mixture is

- (1) Chromatography (2) Crystallisation
(3) Distillation (4) Sublimation

34. Hyperconjugation involves overlap of which of the following orbitals?

- (1) $\sigma-\sigma$ (2) $\sigma-\pi$
(3) p-p (4) $\pi-\pi$

35. The compound which has one isopropyl group is

- (1) 2,2,3,3-tetramethylpentane (2) 2,2-dimethylpentane
(3) 2,2,3-trimethylpentane (4) 2-methylpentane

36. 0.24 g of an organic compound gave 0.22 g of CO₂ on complete combustion. If it contains 1.66% hydrogen, then the percentage of C and O will be.

- (1) 12.5 and 36.6 (2) 25 and 75
(3) 25 and 36.6 (4) 25 and 80

37. Which of the following has the highest nucleophilicity?

- (1) F⁻ (2) OH⁻
(3) CH₃⁻ (4) NH₂⁻

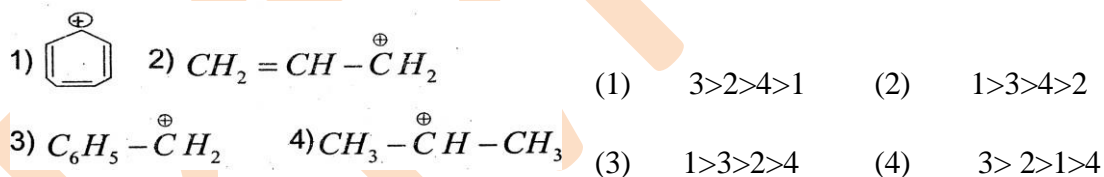
38. Which of the following acids would you expect to be the strongest?

- (1) I-CH₂COOH (2) Cl-CH₂COOH
(3) Br-CH₂COOH (4) F-CH₂COOH

39. Stability of alkyl carbocations can be explained by

- (1) Inductive effect only (2) hyperconjugation
(3) electrometric effect only (4) both Inductive effect & hyperconjugation

40. Decreasing order of stability of given carbocations is



41. In Lassaigne's test if both N and S are present in the organic compound, they are converted to

- (1) Na₂S and NaCN (2) NaSCN
(3) Na₂SO₃ and NaCN (4) Na₂S and NaCNO

42. The type of isomerism found in urea molecule is

- (1) Chain (2) Position
(3) Tautomerism (4) Geometrical

43. 0.28 g of a nitrogenous compound was kjeldahlised to produce 0.17 g of NH₃. The percentage of nitrogen in the organic compound is.

- (1) 5 (2) 30
(3) 50 (4) 80

44. 0.123 g of an organic compound gave 11.2 cc of nitrogen gas at STP as determined by Duma's method. The percent of nitrogen in the compound is

- (1) 11.38 (2) 17.07
(3) 22.76 (4) 34.14

45. 0.96 g chloroplatinate of a diacid base when ignited gave 0.32 g platinum. The molecular mass of the base is (A. wt of Pt =195)

- (1) 175 (2) 350
(3) 87.5 (4) 210

46. Assertion(A): O-nitrophenol and P-nitrophenols can be separated by steam distillation Reason(R): O-nitrophenol exhibits intramolecular H-bonding while P-nitrophenol exists as

Associated molecules.

- (1) Both A and R are true, and R is correct explanation of A
(2) Both A and R are true, and R is not correct explanation of A
(3) A is true but R is false.
(4) A is false and R is true.

47. The geometry of methyl carbanion is likely to be

- (1) pyramidal (2) tetrahedral
(3) planar (4) linear

48. In organic compounds, phosphorous is estimated as

- (1) $Mg_2P_2O_7$ (2) $Mg_3(PO_4)_3$
(3) H_3PO_4 (4) P_2O_5

49. 29.5 mg of an organic compound containing nitrogen was digested according to Kjeldahl method and the evolved ammonia was absorbed in 20 ml of 0.1M HCl solution. The excess of the acid required 15 ml of 0.1M NaOH solution for complete neutralization. The percentage of nitrogen in the compound is

- (1) 29.5 (2) 59.0
(3) 47.4 (4) 23.7

50. The number of possible open chain (acyclic) isomeric compounds for molecular formula C_5H_{10} would be

- (1) 8 (2) 7
(3) 6 (4) 5