Chemistry Study Materials for Class 11

(MCQs Questions with Answers of Chapter- 12)

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Question 1. If two compounds have the same empirical formula but different molecular formula they must have

(a) Different percentage composition **(b) Different molecular weight**

(c) Same viscosity (d) Same vapour density

Question 2.Identify the chiral molecule among the following:

(a) Isopropyl alcohol (b) 2-pentanol

(c) 1-bromo 3-butene **(d) Isobutyl alcohol**

Explanation:

Chirality is the condition for a molecule to be optically active and here isobutyl alcohol is the only compound is optically active and hence it is the chiral molecule.

Question 3. 0.0833mol of carbohydrate of empirical formula CH_2O contain 1g of hydrogen. The molecular formula of the carbohydrate is

(a) $C_5H_{10}O_5$ (b) $C_3H_4O_3$ (c) $C_{12}H_{22}O_{11}$ **(d) $C_6H_{12}O_6$**

Explanation:

As 0.0833 mole carbohydrate has hydrogen = 1g

Therefore, 1 mole carbohydrate has hydrogen = (10.0833) = 12g

Empirical Formula (CH_2O) has hydrogen = 2g

Hence n = (12)(2) = 6

Hence molecular formula of carbohydrate =$(CH_2O)_6$ = $C_6H_{12}O_6$

Question 4. The displacement of electrons in a multiple bond in the presence of attacking reagent is called

(a) Inductive effect **(b) Electromeric effect**

(c) Resonance (d) Hyper conjugation.

Explanation:

The electromeric effect is a temporary effect brought into play at the requirement of attacking reagent. Electromeric effect refers to a molecular polarisability effect occurring by an intra-molecular electron displacement. It is the temporary effect.

Question 5.Which of the following cannot be represented by resonance structures?

(a) Dimethyl ether (b) Nitrate anion (c) Carboxylate anion (d) Toluene

Explanation:

Ethers due to absence of delocalized pair of electrons do not show resonance.

Question 6.An organic compound which produces a bluish green coloured flame on heating in presence of copper is

(a) Chlorobenzene (b) Benzaldehyde (c) Aniline **(d) Benzoic acid**

Explanation:

Halogen containing compounds, e.g.,C_6H_5Cl when placed in a flame, the presence of halogen is revealed by a green to blue flame.

Question 7.Which one is strongest acid among following options?

(a) CH_2FCOOH **(b) $CH_2ClCOOH$** (c) $CHCl_2COOH$ (d) CHF_2COOH

Explanation:CHF_2-COOH. Difluoroacetic acid is strongest because presence of two F atoms increases its acidic nature.

Question 8.Insulin contains 3.4% sulphur. The minimum molecular weight of insulin is (a) 350 (b) 470 (c) 560 **(d) 940**

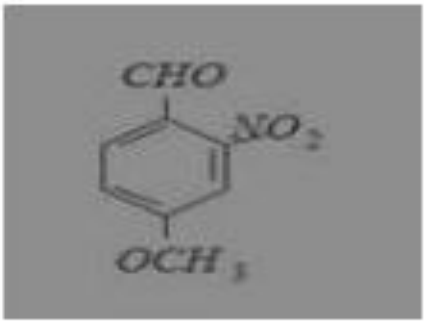
Explanation:

Minimum mass of sulphur = wt. of its one atom = 32

As 3.4 gms of sulphur present in 100 gms.

Therefore, 32 gms of sulphur present in = (100 × 32)/(3.4) = 940

Question 9. What is the correct IUPAC name of



(a) 4-methoxy-2-nitrobenzaldehyde (b) 4-formyl-3-nitro anisole

(c) 4-methoxy-6-nitrobenzaldehyde (d) 2-formyl-5-methoxy nitrobenzene

Question 10. 59 g of an amide obtained from a carboxylic acid, RCOOH, liberated 17 g of ammonia upon heating with alkali. The acid is

(a) Formic Acid **(b) Acetic Acid** (c) Propionic Acid (d) Benzoic Acid

Explanation:

$RCOOH \rightarrow RCONH_2 \rightarrow NH_3$

Since, 17g of NH_3 is liberated from 59 g of acid amide, the amide has molecular mass of 59, i.e., $RCONH_2 = 59$

R + 12 + 16 + 14 + 2 = 59

R + 44 = 59

R = 15

Hence, RisCH_3 group and thus acid is CH_3COOH(Acetic acid)

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