

ESSENCE TEST-7

DATE : 01-09-19

10TH CLASS

ICSE

ACID BASES AND SALT, MOLE CONCEPT,
ORGANIC CHEMISTRY

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**Best**SM solution

IIT-JEE/ NEET/ KVPY/ OLYMPIAD

Section - I

(40 Marks)

1. Choose the correct answer from the options given below: [5x1]=5

(i) The general formula of alkynes is

- (a) C_nH_{2n-2} (b) C_nH_{2n+2}
(c) C_nH_{2n} (d) $C_nH_{2n+2}O$

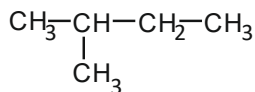
(ii) What is the value of Avogadro's number?

- (a) 6.02×10^{-23} (b) 6.02×10^{23}
(c) 6.02×10^{24} (d) 6.02×10^{25}

(iii) How many moles of NaOH are present in 160 grams of it?

- (a) 4 moles (b) 3 moles (c) 2 moles (d) 10 moles

(iv) What is the IUPAC name of following structure.



- (a) 3-methyl butane (b) 2-methyl butane
(c) pentane (d) Hexane
(v) $\text{CH}_3-\text{CH}_2-\text{OH}$ and $\text{CH}_3-\text{O}-\text{CH}_3$ are
(a) position isomers (b) chain isomers
(c) homologous (d) functional group isomers

2. Draw structural formula for each of the following compounds [5]

- (a) Vinegar (b) 2-propanol (c) ethanol (d) diethyl ether
- (e) acetone.
3. (a) Calculate the number of moles in 7 g of N₂. [1]
- (b) What is the volume at STP of 7.1 g of chlorine? [2]
- (c) What is the mass of 56 cm³ of carbon monoxide at STP? [2]
4. Define: [5]
- (a) Boyle's law (b) Charles law
- (c) Gay lussac's law (d) Avogadro's law
- (e) Avogadro's Number.
5. 0.29 grams of a hydrocarbon with vapour density 29 when burnt completely in oxygen produce 448 ml carbon dioxide at STP. From the given information calculate the
- (a) mass of carbon dioxide formed [1]
- (b) mass of element carbon in carbon di oxide [1]
- (c) empirical formula of hydrocarbon [1]
- (d) mass of hydrogen in hydrocarbon [1]
- (e) molecular formula of hydrocarbon [1]
6. (i) The acid which contains four hydrogen atoms is
- (a) Formic acid (b) Sulphuric acid (c) Nitric acid (d) Acetic acid
- (ii) A black coloured solid which on reaction with dilute Sulphuric acid forms a blue coloured solution is:

(a) Carbon (b) Manganese(iv) Oxide

(c) Lead (ii) oxide (d) Copper (ii) oxide

(iii) Solution A is strong acid, B is weak acid and C is strong alkali.

(a) Which solution contains solute molecules in addition to water molecules.

(b) Which solution given gelatinous white ppt with $ZnSO_4$, ppt disappears in excess.

(c) Give example of weak alkali.

7. Match the following

[5]

Column A

Column B

(i) Acidic salt

(a) Ferrous ammonium Sulphate

(ii) Double salt

(b) Contains only ions

(iii) Ammonium hydroxide

(c) $NaSHO_4$

(iv) Carbon tetrachloride

(d) Contains ions and molecules

(v) Dil. HCl

(e) Contains only molecules

8. (a) Give balanced chemical equations for the preparation of the following salts:

(1) Lead Sulphate → from lead carbonate

(2) Sodium Sulphate → using dilute Sulphuric acid

(3) Copper chloride → using copper carbonate.

(b) Give a suitable chemical term for

(1) A salt formed by incomplete neutralisation of an acid by a base.

(2) A definite number of water molecules of an acid by a base.

Section - II

(40 Marks)

1.(a) Give balanced equations for the following conversions:

(1) Ethanoic acid to ethyl ethanoate

(2) Calcium carbide to ethyne.

(3) Sodium ethanoate to methane

(b) Using their structural formula identify the functional group by circling them

(1) Dimethyl ether

(2) Propanone

2. Name the following:

1. Process by which ethane is obtained from ethene.

2. A hydrocarbon which contributes towards the greenhouse effect.

3. Distinctive reaction that takes place when ethanol is treated with acetic acid.

4. The property of elements by virtue of which atoms of the element can link to each other in the form of a long chain ring structure.

5. Reaction which an alkyl halide is treated with alcoholic potassium hydroxide.

3. (a) Match the salts given in column I with their methods of preparation given in Column II. [5]

Column I

Column II

(i) $\text{Pb}(\text{NO}_3)_2$ from PbO

(a) Simple displacement

(ii) MgCl_2 from Mg

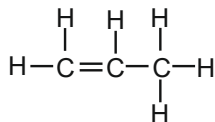
(b) Titration

(iii) FeCl₃ from Fe (c) Neutralisation

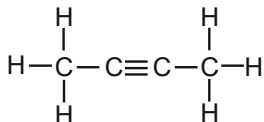
(iv) NaNO₃ from NaOH (d) Precipitation

(v) ZnCO₃ from ZnSO₄ (e) Combination

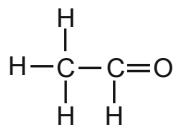
(b) Write IUPAC names of each of the following [5]



(1)

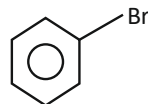


(2)



(3)

(4) CH₃ - CH₃ - CH₂-OH



(5)

4. (a) A gas cylinder contains 12×10^{24} molecules of oxygen gas. If avogadro's number is 6×10^{23} molecules. Calculate:

(1) The mass of oxygen present in the cylinder

(2) The volume of oxygen at S.T.P. present in the cylinder [O₂ = 32]. [2]

(a) A gaseous hydrocarbon contains 82.76% of carbon. Given that its vapour density is 29, find its molecular formula [C = 12, H = 1] [3]

5. Give equations for the following [5]

(1) Preparation of acetylene (2) Preparation of ethyl alcohol

(3) Addition of chlorine to ethylene (4) Preparation of ethane

(5) Sulphurous acid reacts with Bromine.

6. Give the name and structural formula and also give definition of

(a) Saturated (b) unsaturated

Which type of reaction will undergo?

7. Draw the isomeric structures of the following [5]

(1) Butane (2) Pentane.



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