

c) Law of conservation of mass d) Law of gaseous volumes
Attempt Following [2 M Each]

1. Calculate Number of atoms in
 - i) 0.4 mole of Nitrogen
 - ii) 1.6 g of sulphur
2. Find the formula mass of
 - i) $\text{Cu}(\text{NO}_3)_2$
 - ii) CaCl_2
3. Calculate the average atomic mass argon from the following data

Isotope	Isotopic mass (u)	Abundance
^{36}Ar	35.967	0.337%
^{38}Ar	37.962	0.063%
^{40}Ar	39.962	99.600%

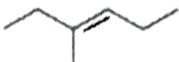
4. Convert the following degree celsius temperature to degree Fahrenheit.
 - i) 40°C
 - ii) 30°C
5. Calculate the molecular mass of following in u
 - i) H_2SO_4
 - ii) H_2O
6. Calculate number of moles and volume at STP for 3.4 g of ammonia (NH_3) gas.
7. State and explain Avogadro's Law
8. State and explain the law of definite proportions.
9. State TRUE or FALSE. If false correct
 - i) Recently, amu has been replaced by unified mass unit called **Dalton** Dalton
 - ii) Isotopes have same atomic mass
10. Give one example of each
 - a) Homogeneous mixture
 - b) Heterogeneous mixture
 - c) Elements
 - d) Compound
11. How many particles present in 1 mole of a substance and calculate the ratio of molecules in 1 mole of NH_3 and 1 mole of HNO_3

Attempt following [2 M Each]

1. Calculate number of moles in 5.6 dm^3 of hydrogen gas at STP

2. Write the formula to convert degree celsius temperature to Kelvin
3. Which of the following contains more number of atoms
 - i) 14u of carbon
 - ii) 2.4 g of carbon
4. Which of the following gas occupies higher volume at STP
 - a) 6.022×10^{24} atoms of Helium
 - b) 0.2 moles of Helium
5. State the Law of multiple proportions
6. Define: Formula mass
7. Define: One mole
8. The mass of an atom of hydrogen is 1.008u . What is mass of 100 atoms of hydrogen?
9. What is meant by molar volume of a gas.
10. Write value of Avogadro's constant N_A
11. State Law of conservation of mass.

A. Select and write the most appropriate answer from the given alternatives for each sub question

i. The correct IUPAC name of the compound  is.

- a) hept - 3 - ene b) 2 - ethylpent - 2 - ene
c) hex - 3 - ene d) 3 - methylhex - 3 - ene

ii. The homologous series of alcohol has general formula _____.

- a) $C_nH_{2n+1}OH$ b) $C_nH_{2n+2}OH$
c) $C_nH_{2n-2}OH$ d) $C_nH_{2n}OH$

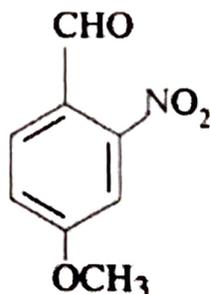
iii. The IUPAC name of CH_3CHO is

- a) Acetaldehyde b) Methyl aldehyde
c) formyl chloride d) ethanal

iv. Which of the following molecular formulas belongs to the alkyne series?

- a) C_7H_{14} b) $C_{10}H_{22}$
c) C_9H_{16} d) $C_{16}H_{32}$

v. What is the correct IUPAC name of



- a) 4 - methoxy - 2 nitrobenzaldehyde
b) 4 - formyl - 3 - nitroanisole
c) 4 - methoxy - 6 - nitrobenzaldehyde
d) 2 - formyl - 5 - methoxy nitrobenzene

vi. The functional group present in an organic acid is

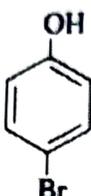
- a) - COOH b) - OH
c) - CHO d) $>C=O$

vii. Butanone is a four carbon compound with the functional group -

- a) ketone b) carboxylic acid
c) aldehyde d) alcohol

viii. What is the IUPAC name of $\text{CH}_3\text{COCH}(\text{CH}_3)_2$

- a) 3 - methyl - 2 - butanone
- b) 4 - methyl isopropyl ketone
- c) 2 - methyl - 3 - butanone
- d) isopropyl methyl ketone

ix. IUPAC name of  is

- a) 1 - Bromophenol
- b) Bromophenol
- c) 4 - Bromophenol
- d) 1, 2 - dibromophenol

x. The organic compound possessing two or more functional groups (same or different) in their molecules are called

- a) Monofunctional compounds
- b) Open chain compounds
- c) Aromatic compounds
- d) Polyfunctional compounds

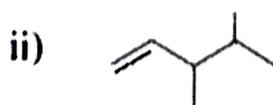
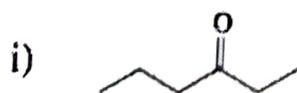
xi. Functional group present in primary amine is _____.

- a) $-\text{NO}_2$
- b) $-\text{NH}_2$
- c) $-\text{NH}-$
- d) $-\text{N}-$
|

xii. Correct structural formula of 2, 2-dimethylpropane

- a) $\text{H}_3\text{C}-\text{CH}_2-\text{CH}_2\text{CH}_3$
- b) $\text{CH}_3-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_2-\text{CH}_3$
- c) $\text{H}_3\text{C}-\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}-\text{CH}_3$
- d) $\text{CH}_3-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_3$

B. Write dash formulae for following bond line formulae

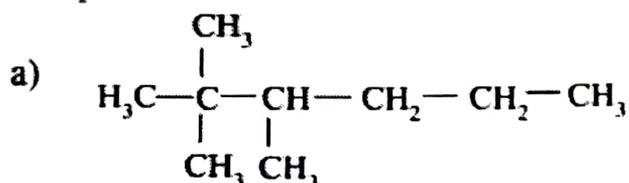


C. Write True or False

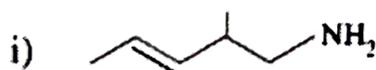
- i. Aniline is a heterocyclic compound
- ii. Tropone is a benzenoid aromatic compound
- iii. Compounds in which ring includes one or more heteroatoms are known as homocyclic compounds
- iv. Furan is an example of homocyclic compound
- v. Other name of acyclic compounds is aliphatic compounds

D. Answer the following :

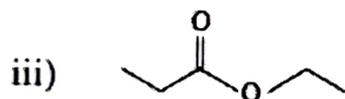
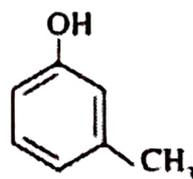
- i. Write a note on Wedge formula
- ii. Write first four members of the homologous series that begins with CH_3CHO
- iii. Define: Homologous series
Heterocyclic compounds
- iv. Identify primary, secondary tertiary and quaternary carbon in the following compounds



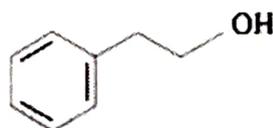
v. Write IUPAC names of the following



ii)



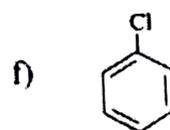
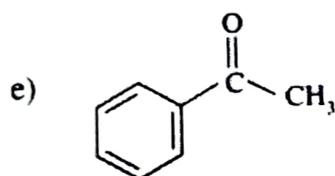
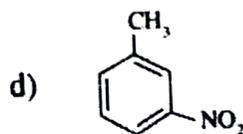
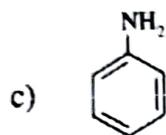
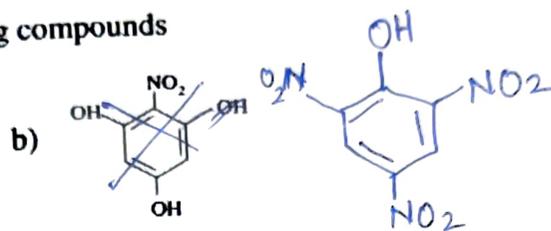
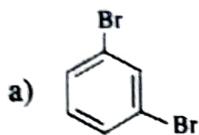
iv)



vi. Write structural formulae of following IUPAC names mentioned

- a 2, 3, 5 – trimethylhexane
- b 3, 4, 4 – trimethyl pentan – 2 – ol
- c 3 – ethyl – 5 – methyl heptane
- d 2 – Bromo – 3 – methylbutane
- e 3 – ethyl – 4 – methylhexane
- f 2, 3, 5 – trimethylhexane
- g 2, 3 – Dimethylpentane

vii. Write IUPAC names of following compounds



viii. Write the name of functional group of the following

