

Chemistry

Instructions: 1. Write the answers in space provided

Note: You may send your solution by post and get corrections at
PREM SINGH

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Chapter – 2

Matter around is pure

Q.1 Is air a mixture or a compound? Give 3 reasons for your answer.

Q. 2 Give two examples each fro the following

1. Aerosol –
2. Emulsion –
3. Gel –
4. Solid sol. –

Q.3 A solution contains 40g of sugar dissolved in 360g of water. Calculate the concentration of this solution.

Q.4 Which method of separation will you use in the following cases:

1. To separate cream from milk_____.
2. To separate tow immiscible liquids _____.
3. To separate 2 liquids with more than 25°C difference in the boiling points_____
4. Separation of dye from ink._____.
5. Used in diagnostic Laboratories for blood & Urine sample_____.
6. In extraction of Iron from its ore_____.
7. To separate drugs from blood_____.
8. To separate components of air_____.
9. For purification of salt that we get from sea water_____.
10. To get different components of petroleum_____.

Q.5 Write two examples each for chemical & physical changes.

Chapter – 3 Atoms and molecules

Q.1 An atom of neon has a mass of 3.5×10^{-23} g. how many atoms of neon are there in 20g of the gas (atomic mass = 20μ).

Q.2 What mass in g is represented by (a) 0.40mol of CO_2 . (b) 3.00 mol of NH_3 . (c) 5.14 mol of H_5IO_6 (C = 12, O = 16, N = 14, H = 1, I = 127).

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Q.3 Calculate the number of atoms of each element present in 9.8g of H_2SO_4 .

Q.4 Write the chemical formula of the following: -

- a) Barium nitrate
- b) Sodium sulphate
- c) Zinc chloride
- d) Mercury Sulphide.

Q. 5 What is the percentage composition of the elements in NH_3 ?

Q. 6 2.0g of a sample of NaCl contains 0.785 g of Na and 1.775g of chlorine. In another sample, 2.925g of NaCl was found to contain 1.15g of Na and 1.775g of chlorine. Show that these data are in agreement with the law of constant proportion.

Q.7 Give example of poly atomic ion having.

- a) Positive charge
- b) Negative charge.

Q.8 Write atomicity of the following.

- a) Hydrogen
- b) Helium
- c) Ozone.

Q.9 When 5g of Ca is burnt in 2g of Oxygen, then 7g of CaO is produced. What mass of CaO will be produced when 5g of Ca is burnt in 20g of oxygen? Which law of Chemical combination will govern your answer?

Q.10 Write the relationship between moles, mass and Avagadro's number.

Chapter – 4 Structure of atom

Q.1 What is an orbit/shell/energy level? When is it called valence shell?

Q.2 What is the location and charge of electron and neutron in an atom?

Q.3 An atom of an element has 5 electrons in "M" shell. Calculate it's

a) Atomic No.

b) Valency

c) Electronic Configuration.

Q.4 Name the elements having different physical properties and same chemical properties. Also give the reason for same.

Q.5 Which is lighter : a proton or an electron?

Q.6 An isotope of lead has a mass no. 211 and atomic no.82 (${}_{82}^{211}\text{Pb}$) During the radioactive disintegration, it gets converted into an element whose mass No. remains the same but atomic no. increase by 1. Will the end product be an isobar or not.

Q.7 Which fundamental particle is equal in number in Mg^{2+} & Al^{3+} ions?

Q.8 An ion X^{2-} contains 10 electrons and 8 neutrons. What are the atomic no. and mass no. of the element X? Name the element.

Q.9 An element M has symbol ${}_{9}^{19}\text{M}$ Calculate the no. of p^+ , e^- and n^0 in neutral atom and in the ion formed by it. Give the valency of the ion formed as well as neutral atom.

Q.10 Who discovered the following:- Neutrons, nucleus and electrons.

Q.11 Which observation of alpha particle scattering experiment led to the conclusion of existence of positive charge on the nucleus?

Physics

Work and energy

Q.1 Define kinetic energy of a body.

Q.2 Define the S.I unit of work.

Q.3 Define elastic p.e and gravitational p.e.

Q.4 What is law of conservation of energy.

Q.5 When do we say that work is done?

Q.6 Define 1 watt.

Q.7 What type of energy conversion take place in

- An electric bulb.
- Electric cell.
- Hydroelectric power station.

Q.8 Define the commercial unit in which electric energy is measured obtain its value in terms of S.I unit of energy.

Q.9 By how much will the K.E. of a body increase if its speed is doubled? (Show steps).

Biology

The Fundamental Unit of Life

Very short type answer type question (one mark each).

Q.1 Who discovered cell?

Q.2 Who discovered nucleus?

Q.3 Who coined the term protoplasm?

Q.4 Name the scientists, who presented the cell theory?

Q.5 Who suggested that all cells arise from pre-existing cells?

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- Q.6 Who discovered Golgi apparatus?
- Q.7 Why cell is known as structural and functional unit of life?
- Q.8 Name some one – called (Unicellular) organisms.
- Q.9 On what factors shape and size of cell depends?
- Q.10 Why shape and size of cell is different?
- Q.11 What is protoplasm?
- Q.12 Which cell organelle controls the various activities of cell?
- Q.13 What function pores present on nuclear membrane perform?
- Q.14 Name the two chief components of nucleus.
- Q.15 Which nuclear component changes into chromosome?
- Q.16 Name the two nucleic acid present in the cell.
- Q.17 Where genes are located?
- Q.18 Name the substance of which genes are made up of.

- Q.19 Name the two types of Endoplasmic reticulum (ER).
- Q.20 Cells contains smooth flattered cisternae (sac like) structures. Name them.
- Q.21 Which cell organelle give rise to lysosome?
- Q.22 Which cell organelle is known as digestive or suicide bag of cell?
- Q.23 Which cell contains powerful enzyme which can digest cell contents?
- Q.24 Which cell organelle carry oxidative reactions including removal of toxic substances?
- Q.25 Which cell organelle is known as “Power plant” or “powerhouse of cell?
- Q.26 In which chemical form energy is stored in our body?
- Q.27 Name the cell organelle which are exclusively found in plant cell.
- Q.28 Name the organelle exclusively found in animal cell.
- Q.29 In which cell organelle chlorophyll pigment is found?
- Q.30 What imparts colour to flower, fruits and vegetables in plants?

Q.31 What is nucleoid?

Q.32 Give examples of prokaryotes.

Q.33 What is Tonoplast?

Q.34 What will happen to a plant cell if it is kept in a hypotonic solution?

Tissue

Q.1 What are three types of meristematic tissue?

- (i)
- (ii)
- (iii)

Q.2 What are the three types of permanent (simple tissue) also write two characteristics and one function of each.

Q.3 What is lateral meristem known as?

Q.4 Explain what are epidermal cells? Also write down the functions of each epidermal cell. Epidermis –

- Function -
- i)
 - ii)
 - iii)

Q.5 What are the elements of xylem and phloem? Also differentiate between xylem and phloem.

Elements of xylem –

- i)
- ii)
- iii)
- iv)

Elements of phloem –

- i)
- ii)
- iii)
- iv)

difference between xylem & phloem:

Xylem

i)

ii)

Phloem

i)

ii)

Q.6 List some functions of epithelial cells –

- i) columnar
- ii) ciliated
- iii) cuboidal
- iv) squamous

Q.7 What is the composition of blood –

- i)
- ii)
- iii)
- iv)

Q.8 Differentiate between the following –

a) Bone

- i)
- ii)

b) Tendon

- i)
- ii)

Cartilage

- i)
- ii)

Ligament

- i)
- ii)

c) Striated muscle

- i)
- ii)
- iii)
- iv)

Smooth Muscle

- i)
- ii)
- iii)
- iv)

Q.9 Write two characteristic of the following –

- a) Cardiac Muscle
- b) Nervous Tissue
- c) Areolas

- i)
- i)
- i)

- ii)
- ii)
- ii)

Q.10 Name one liquid and one solid connective tissue

i)

ii)

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