

Grade 9

Chemistry revision worksheet

MCQ

1. Which of the following statements is not true about an atom?

- (a) Atoms are not able to exist independently.
- (b) Atoms are the basic units from which molecules and ions are formed.
- (c) Atoms are always neutral in nature.
- (d) Atoms aggregate in large numbers to form the matter that we can see, feel or touch.

2. 1 u or 1 amu means

- (a) 1/12th mass of C-12 atoms
- (b) Mass of C-12 atom
- (c) Mass of O-16 atom
- (d) Mass of Hydrogen molecule

3. A sample of NH_3 molecule irrespective of source contains 82.35% Nitrogen and 17.65% of Hydrogen by mass. This data supports:

- (a) Law of Conservation of Mass

(b) Law of Multiple Proportions

(c) Law of Definite Proportions

(d) Avogadro's Law

4. The molecular formula of potassium nitrate is _____.

(a) KNO_3

(b) KNO

(c) KNO_2

(d) KON

5. Molecular mass is defined as the:

(a) Mass of one molecule of any substance compared with the mass of one atom of C – 12

(b) Mass of one atom compared with the mass of one atom of hydrogen

(c) Mass of one atom compared with the mass of one molecule

6. What is the formula mass unit of ZnO ?

(a) 18 u

(b) 81 u

(c) 88 u

(d) 188 u

7. Which of the following represents the correct relation between Avogadro's number (N_0), number of particles (N) and moles (n)?

- (a) $n = N / N_o$
- (b) $n = N_o / N$
- (c) $n = N N_o$
- (d) all are correct

8. Atomic mass of Chlorine is ———— (u)

- (a) 34
- (b) 34.5
- (c) 35
- (d) 35.5

9. What is the chemical formula of sodium carbonate?

- (a) Na_2CO_3
- (b) NaHCO_3
- (c) NaCO_3
- (d) Na_2HCO_3

10. Which among the following is not a postulate of Dalton's atomic theory?

- a). Atoms cannot be created or destroyed
- b). Atoms of different elements have different sizes, masses and chemical properties
- c). Atoms of same elements can combine in only one ratio to produce more than any one compound

d). Atoms are very tiny particles which can not be further divided

11. The formula of ethanol is $C_2H_5 - OH$. What will be its molecular mass?

a). 46 u

b). 34 u

c). 34 g

d). 46 g

12. When alpha-particles are sent through a thin metal foil, most of them go straight through the foil because, _____.

(a) alpha-particles are much smaller than electrons.

(b) alpha-particles are positively charged

(c) most part of the atom is empty space

(d) alpha-particles move with a low velocity

13. In ammonia, nitrogen and hydrogen is in ratio by mass.

a) 14:5

b) 14:3

c) 14:8

d) 14:2

14. Who discovered the electron?

(a) Rutherford

(b) Chadwick

(c) Thomson

(d) Goldstein

15. Which isotope is used in the nuclear power plants to generate electricity?

(a) Uranium 235

(b) Iodine 131

(c) Cobalt 60

(d) Uranium 238

16. Why was the Thomson's Model of an atom failed?

i. It could not explain the screening of negative charges from that of positive

ii. It did not tell about the presence of electrons

iii. It did not give an idea about the discrete energy levels

iv. It explained the atom as a whole to be electrically neutral

Choose the correct option from the following:

(a) Only (iii)

(b) Both (i) & (iii)

(c) Only (i)

(d) Both (ii) & (iv)

17. What was the source of alpha particles in Rutherford scattering experiment?

(a) Hydrogen nucleus

(b) Argon nucleus

(c) Helium nucleus

(d) None of these

18. What property of an element determines its chemical behaviour?

(a) Size of an element

(b) Valency of an element

(c) Molar mass of the element

(d) None of these

19. Which of the following does not match the characteristics of an Isotope?

(a) Isotopes of some elements are radioactive

(b) Isotopes are the atoms of different elements

(c) Isotopes differ in number of neutrons

(d) Isotopes have similar chemical properties

20. Which of the two will be chemically more reactive, Sulphur(S) with atomic number 16 or Chlorine (Cl) with atomic number 17?

(a) Chlorine

(b) Sulphur

(c) Both are equally reactive

(d) Can't say

21. Which of the following statements is incorrect about the structure of an atom?

a). The whole mass of an atom is concentrated in the nucleus

b). The atom is an indivisible particle

c). The atom as a whole is neutral

d). All the atoms are stable in their basic state

Choose the right option among the following:

(a) (i) and (iii)

(b) only (ii)

(c) (ii) and (iv)

(d) none of these

22. Which scientist gave the concept of fixed energy levels around the nucleus?

(a) Ernest Rutherford

(b) Neils Bohr

(c) J.J.Thomsan

(d) None of these

23. What prevents an atom from being collapsed?

- (a) The nuclear forces
- (b) Movement of electrons in discrete energy levels
- (c) The electron-electron repulsions
- (d) All of these

24. Which of the following pairs are isobars?

- (a) $_{17}\text{Cl}^{35}$ & $_{17}\text{Cl}^{37}$
- (b) $_{18}\text{Ar}^{40}$ & $_{20}\text{Ca}^{40}$
- (c) $_{6}\text{C}^{12}$ & $_{6}\text{C}^{14}$
- (d) None of these

25. Which of the following is an incorrect statement in reference with observation in Rutherford's α -particle scattering experiment?

- (a) Some of the α -particles rebound after hitting the gold foil
- (b) Some of the particles deflected from their path
- (c) Some of the particles not pass through the gold foil
- (d) Most of the particles pass straight through the gold foil

26. Which radioactive element is used in the treatment of cancer?

- (a) Iodine-131

(b) Uranium-234

(c) Plutonium-239

(d) Cobalt-60

27. Why do most of the elements try to participate in the chemical combinations?

i. To gain more electrons

ii. To achieve Inert Gas configuration

iii. To complete their octet

iv. To complete their inner shells

Choose the correct option among the following

(a) Both (i) & (iii)

(b) Both (ii) & (iii)

(c) Only (ii)

(d) Both (i) & (iv)

28. Which of the following correctly represents the electronic distribution in the Mg atom?

(a) 3, 8, 1

(b) 2, 8, 2

(c) 1, 8, 3

(d) 8, 2, 2

29. The isotope of hydrogen that contains the same number of protons and neutrons in its nucleus is called

(a) Protium

(b) Deuterium

(c) Tritium

(d) None of these

30. If $Z = 6$, what would be the valency of the element?

(a) 6

(b) 2

(c) 4

(d) 8

Direction: In each of the following questions, a statement of Assertion is given followed by a corresponding statement of Reason. Of the statements, mark the correct answer as

(a) Both assertion and reason are true and reason is the correct explanation of assertion.

(b) Both assertion and reason are true but reason is not the correct explanation of assertion.

(c) Assertion is true but reason is false.

(d) Assertion is false but reason is true

31. Assertion: The number of particles present in one mole of a substance is fixed.

Reason: The mass of one mole of a substance is equal to its relative atomic mass in grams.

32. Assertion: Atoms always combine to form molecule and ions.

Reason: Atoms of most element are not able to exist independently.

33. Assertion: Atomicity of ozone is three while that of oxygen is two.

Reason: Atomicity is the number of atoms constituting a molecule.

34. Assertion: 1 amu equals to 1.66×10^{-24} g.

Reason: 1.66×10^{-24} g equal to $1/12^{\text{th}}$ mass of a C-12 atom.

35. Assertion: A sodium ion has positive charge.

Reason: Sodium ion has more protons than a neutral atom.

36. Assertion : Ions are always positively charged.

Reason : Ions are formed by losing or gaining of electrons.

37. Assertion : All noble gases are monoatomic.

Reason : Noble gases are highly stable and unreactive.

38. Assertion: For noble gases, valency is zero.

Reason: Noble gases have 8 valence electrons.

39. Assertion: Thomson's atomic model is known as 'raisin pudding' model.

Reason: The atom is visualized as a pudding of positive charge with electrons (raisins) embedded in it.

40. Assertion: The mass of the total number of protons and neutrons is a measure of the approximate mass of an atom.

Reason: The mass of an electron is negligible.

41. Assertion: Electrons moving in the same orbit will lose or gain energy.

Reason: On jumping from higher to lower energy level, the electron will gain energy

42. Assertion: Isotopes are electrically neutral.

Reason: Isotopes are species with same mass number but different atomic numbers

43. Assertion: Atom is electrically neutral.

Reason: A neutral particle, neutron is present in the nucleus of atom.

44. Assertion: Isotopes are electrically neutral.

Reason: Isotopes of an element have equal number of protons and electrons.

45. Assertion: Isobars are identical in chemical properties.

Reason: Isobars have same atomic number.

46. Assertion: Anions are larger in size than the parent atom.

Reason: In an anion, the number of protons in the nucleus is less than the number of electrons moving around it

47. Assertion : When a beam of light is passed through a colloidal solution placed in a dark place the path of the beam becomes visible.

Reason : Light gets scattered by the colloidal particles.

48. Assertion : A mixture of benzoic acid and naphthalene can be separated by crystallization from water.

Reason : Benzoic acid is soluble in hot water but naphthalene is insoluble in hot water.

49. Assertion : A solution of table salt in a glass of water is homogeneous.

Reason : A solution having different composition throughout is homogeneous.

50. Assertion : In sublimation, a substance changes directly from solid to vapour without passing through

liquid state and vice-versa.

Reason : Distillation involves two processes i.e., vaporisation and condensation.

51. Assertion : True solution exhibits Tyndall effect.

Reason : Particles are very large in size.

52. Assertion : Colloidal solutions are stable and the colloidal particles do not settle down.

Reason : Brownian movement counters the force of gravity acting on colloidal particles.

53. Assertion : A gas can easily be compressed by applying pressure.

Reason : Since the inter-particle spaces between gases are very large, they can decrease by applying pressure.

54. Assertion : Gases exert pressure on the walls of the container.

Reason : The intermolecular force of attraction is very strong in gases.

55. Assertion : It is easier to cook food at sea level as compared to higher altitudes.

Reason : The boiling point of water increases at high altitudes.

56. Assertion : When a solid melts, its temperature remains the same.

Reason : The heat gets used up in changing the state by overcoming the forces of attraction between the particles.

57. Assertion : The rate of evaporation increases with increase in temperature.

Reason: Increase in temperature decreases the kinetic energy of the particles.

58. Assertion : It is easier to cook food at sea level as compared to higher altitudes.

Reason : The boiling point of water increases at high altitudes.

59. Assertion : When a solid melts, its temperature remains the same.

Reason : The heat gets used up in changing the state by overcoming the forces of attraction between the particles.

60. Assertion : The boiling point of water is 100 C.

Reason : The boiling point of water increases at higher altitudes.