

SOME BASIC CONCEPTS OF CHEMISTRY WS 1

Class 11 - Chemistry

Section A

1. Chemistry does not play a major role in: [1]
- a) Large scale production of a variety of fertilizers. b) Design and synthesis new materials having specific magnetic, electric and optical properties.
- c) Explaining ozone depletion. d) Explaining superconductivity
2. The application of chemical research, techniques to the synthesis of pharmaceuticals is studied under which branch of chemistry? [1]
- a) Medicinal chemistry b) Green chemistry
- c) Inorganic chemistry d) Nano chemistry
3. The collective study of separation, identification and quantitative determination of the composition of different substances is dealt under _____ chemistry. [1]
- a) analytical b) bio
- c) inorganic d) organic
4. In a homogeneous mixture, the components are: [1]
- a) do not mix with each other and its composition is uniform throughout. b) do not mix with each other and its composition is not uniform throughout.
- c) completely mixed with each other and its composition is uniform throughout. d) completely mix with each other and its composition is not uniform throughout.
5. O₃ is absorbed by: [1]
- a) Pyrogallol b) Clove oil
- c) Menthol d) Turpentine oil
6. Matter can be classified at the macroscopic or bulk level as: [1]
- a) Elements and molecules b) mixtures or pure substances
- c) Solids and liquids d) Atoms and molecules
7. In a homogeneous mixture, [1]
- a) the components do not mix with each other and its composition is uniform throughout. b) the components completely mix with each other and its composition is uniform throughout.
- c) the components completely mix with each other and its composition is not uniform throughout. d) the components do not mix with each other and its composition is not uniform throughout.

c) 0.002 mm/s

d) 2000 mm/s

19. **Assertion (A):** Mass spectrometer is used for the determination of isotopes. [1]

Reason (R): Isotopes are the atoms of same element differing in mass number.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

20. **Assertion (A):** 22-carat gold is a compound. [1]

Reason (R): A compound has fixed composition of the elements present in it.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

21. **Assertion (A):** Isomorphous substances form crystals of the same shape and can grow in a saturated solution of each other. [1]

Reason (R): They have a similar constitution and chemical formulae.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

22. **Assertion (A):** Density is an intensive property. [1]

Reason (R): Density does not depend on the size of the sample.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

23. **Assertion (A):** Element can form different compound. [1]

Reason (R): Element is the pure form of a substance containing the same kind of atoms.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

24. **Assertion (A):** The standard unit for expressing the mass of atoms is a.m.u. [1]

Reason (R): a.m.u. stands for mass of 1 atom of carbon.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

25. **Assertion (A):** Vapour density of sulphur relative to oxygen is 2 because sulphur atom is twice as heavy as that of the oxygen atom. [1]

Reason (R): Vapour density depends upon the molecular state of the substance in the vapour state.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

26. There are _____m in 2000 mm? [1]

- a) 20 m
c) 2 m
- b) 0.002 m
d) 0.02 m
27. Which of the following statements about a compound is incorrect? [1]
- a) A compound retains the physical properties of its constituent elements.
b) A molecule of a compound has atoms of different elements.
c) The ratio of atoms of different elements in a compound is fixed.
d) A compound cannot be separated into its constituent elements by physical methods of separation.
28. Which of the following statements about pure substances and mixture is correct? [1]
- a) Pure substances have variable composition, whereas mixtures may contain the components in any ratio and their composition is variable.
b) Pure substances have fixed composition, whereas mixtures may contain the components in fixed ratio and their composition is fixed.
c) Pure substances do not have a fixed composition, whereas mixtures may contain the components in any fixed ratio.
d) Pure substances have fixed composition, whereas mixtures may contain the components in any ratio and their composition is variable.
29. Which of the following statements about pure substances is correct? [1]
- a) Pure substances have fixed composition.
b) Pure substances do not have fixed composition.
c) Pure substances are compounds only
d) Pure substances are elements only.
30. What is Chemistry? [1]
31. How has chemistry contributed towards nation's development? [1]
32. Name the different methods that can be used for separation of components of a mixture. [1]
33. Why is the law of Gay Lussac's not obeyed if any reactant or product is not a gas? [1]
34. How is the term material different from matter? [1]
35. Differentiate between flowing solids, liquids & gases in terms of volume & shapes. [1]
36. Classify following as pure substances and mixtures – Air, glucose, gold, sodium and milk. [1]
37. Convert the following into basic units: [1]
- i. 28.7 pm
ii. 15.15 pm
iii. 25365 mg
38. What are the reference points in thermometer with Celsius scale? [1]
39. If the speed of light is $3.0 \times 10^8 \text{ ms}^{-1}$, calculate the distance covered by light in 2.00 ns. [1]
40. Define the term 'unit' of measurement. [1]
41. What is the SI unit of mass? How is it defined? [1]
42. How can we separate the components of a compound? [1]

Section B

43. Match the followings: [2]

Column A	Column B
(a) Tear gas.	(i) carbon tetrachloride.

(b) quick lime.	(ii) chloropicrin.
(c) picric acid.	(iii) calcium oxide.
(d) pyrene.	(iv) 2,4,6-trinitrophenol.

44. Match the following table: [2]

Column A	Column B
(a) 1 foot.	(i) - 273°C
(b) absolute zero	(ii) 0.3048 m
(c) 1 yard.	(iii) 0°C
(d) 273.15 K	(iv) 0.9144 m

45. Match the followings: [2]

Column A	Column B
(a) Avogadro's number.	(i) 109678 cm ⁻¹ .
(b) Planck's constant.	(ii) 6.022 × 10 ²³ .
(c) Rydberg constant.	(iii) 6.67408 × 10 ⁻¹¹ m ³ kg ⁻¹ s ⁻² .
(d) Gravitational constant.	(iv) 6.63 10 ⁻³⁴ Js.

46. Match the followings: [2]

Column A	Column B
(a) Glucose.	(i) element.
(b) LPG.	(ii) compound.
(c) graphite.	(iii) metal.
(d) mercury.	(iv) mixture.

47. Match the following: [2]

Column A	Column B
(a) 200° F	(i) 2.69 × 10 ¹⁹
(b) -40° F	(ii) 1.66 × 10 ⁻²⁴ g
(c) 1 amu	(iii) - 40° C
(d) Loschmidt number.	(iv) 93.3° C

48. Match the followings: [2]

Column A	Column B
(a) Mass.	(i) Nm ⁻¹ .
(b) Density.	(ii) Kg.
(c) Pressure.	(iii) candela.
(d) Luminous intensity.	(iv) g mL ⁻¹

49. Match the followings: [2]

Column A	Column B
(a) exa.	(i) 10^9 .
(b) zeta.	(ii) 10^{18} .
(c) giga.	(iii) 10^{-12} .
(d) pico.	(iv) 10^{21} .

50. How can we say that sugar is solid and water is liquid? [2]

51. The water level in a metric measuring cup is 0.75 L before the addition of a pebble weighing 150 g. The water level after submerging the pebble is 0.82 L. Determine the density of the pebble. [2]

52. Match the following prefixes with their multiples. [2]

S.No.	Prefix	Multiples
1.	micro	10^6
2.	deca	10^9
3.	mega	10^{-6}
4.	giga	10^{-15}
5.	femto	10

53. A piece of metal is 3 inch (represented by in) long. What is its length in cm? [2]

54. How is volume measured in laboratory? Convert 0.5L into mL and 30cm^3 to dm^3 . [2]

55. Convert 2.6 minutes in seconds. [2]

56. How is matter classified at macroscopic level? [2]

57. Pressure is determined as force per unit area of the surface. The SI unit of pressure, Pascal, is as shown below: [2]

$$1\text{Pa} = 1\text{N m}^{-2}$$

If mass of air at sea level is 1034 g cm^{-2} , calculate the pressure in pascal.

58. What does the following prefixes stand for – [2]

- a. pico
- b. nano
- c. centi
- d. deci

59. Calculate the normality of solution containing 62.3 g of hydrated copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$) in 500 mL of solution. [2]

60. If the speed of light is $3.0 \times 10^8\text{ m s}^{-1}$, calculate the distance covered by light in 2.00 ns. [2]

61. What is the difference between mass & weight? How is mass measured in laboratory? [2]

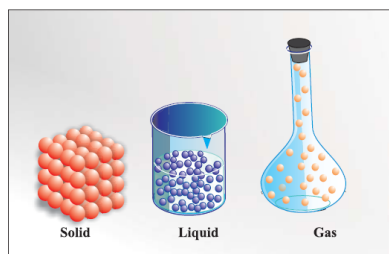
62. Convert 35°C to $^\circ\text{F}$ & K. [2]

63. How many seconds are there in 2 days? [2]

Section C

Question No. 64 to 68 are based on the given text. Read the text carefully and answer the questions: [5]

Chemistry developed mainly in the form of Alchemy and Iatrochemistry during 1300-1600 CE. Modern chemistry took shape in 18th century Europe. Chemistry contributes in a big way to the national economy. It also plays an important role in meeting human needs for food, healthcare products, and other material aimed at improving the quality of life anything which has mass and occupies space is called matter. Everything around us, for example, a book, pen, pencil, water, air, all living beings, etc., are composed of matter can exist in three physical states viz. solid, liquid and gas. Particles are held very close to each other in solids in an orderly fashion and there is not much freedom of movement. In liquids, the particles are close to each other but they can move around. However, in gases, the particles are far apart as compared to those present in solid or liquid states and their movement is easy and fast. Because of such arrangement of particles.



64. Which of the following drugs is used for helping AIDs patients?

- a) Taxol
- b) Cisplatin
- c) Steroid
- d) Azidothymidine

65. _____ completely occupy the space in the container in which they are placed.

- a) Liquid
- b) Gases
- c) Solid and liquid both
- d) Solid

66. Which of the following statements is incorrect?

- I. Methane is greenhouse gas
- II. CFCs responsible for ozone depletion in the stratosphere
- III. AZT is very effective in cancer therapy
- IV. Chemistry doesn't play a major role in the growth of nation

- a) III and IV
- b) III and I
- c) I and II
- d) II and IV

67. Who describes recipes for making scents?

- a) Brihat
- b) Gandhayukli
- c) Atharvaveda
- d) Jataka

68. Which of the following is the incorrect match?

	Column A	Column B
a.	Solid change in liquid	on heating
b.	Liquid change into gas	on heating
c.	Gas change into liquid	on heating
d.	Liquid change to solid	on cooling

- a) b
- b) d
- c) a
- d) c

Section D

69. **Fill in the blanks:** [7]
- (a) _____ is the science of substances, their properties, their structure, and their transformation. [1]
- (b) Matter is anything which has _____ and occupies _____. [1]
- (c) A pure substance is defined as a variety of matter, all samples of which have same _____ and _____ . [1]
- (d) $E = mc^2$ is known as _____ equation. [1]
- (e) A chemical change is termed _____ when one isomer is converted into another. [1]
- (f) Bronze is an alloy of _____ and tin. [1]
- (g) The property of a metal to be drawn into wires is termed _____. [1]