T3-Chemistry

Model Question Paper VIII

9th Standard

Science

Reg.No. : | | | | | | |

I. Answer all the questions

Time : 01:55:00 Hrs

Total Marks : 65

Part-A

10 x 1 = 10

1) In Mendeleev's periodic table, all the elements are sorted by the periodic functions of their _____

(a) Mass number (b) Atomic number

2) Liquid metal at room temperature is _____

(a) Mercury (b) Bromine (c) Tin

3) Metalloids have some metallic properties and some non-metallic properties. An example of a metalloid is_____

(a) Silicon (b) Argon (c) Iodine

4) Arrange the following elements in the increasing order of reactivity.

(a) Na (b) Ca (c) Mg

5) An alloy used in manufacturing aircraft parts is _____

(a) solder (b) brass (c) duralumin

6) Which of the following metal does not liberate H_2 from dilute acids?

(a) Zinc (b) Iron (c) Tin (d) Lead

7) As per the octet rule, noble gases are stable in nature. This is due to the presence of _____ electrons in their outermost shell.

(a) eight (b) seven (c) six

8) The Atomic number of magnesium is 12. Then its electron distribution is _____

(a) 2,2,8 (b) 2,8,2 (c) 8,2,2

9) The compound that possesses high melting point is _____

(a) NH_3 (b) NaF

10) CH_4 is a /an _____compound.

(a) covalent (b) ionic

Part-B

5 x 1 = 5

11) As per Newland's 'Law of Octaves', which of the two elements in the given table have repetition of similar properties?

1	2	3	4	5	6	7	8
Na	Mg	Al	Si	P	S	Cl	K

12) Complete the reaction: $Mg+O_2 \longrightarrow$ _____.

13) Write a balanced chemical equation for the reaction between zinc and iron(II) sulphate.

14) Choose the correct word:

A _____(more/less) reactive metal displaces a _____(more/less) reactive metal from its salt solution.

15) Pick out the wrong statement about the properties of covalent compounds.

a) They are neither hard nor brittle. b) Molecular reactions are fast.

Part-C

10 x 2 = 20

16) Mendeleev's periodic table is constructed into vertical columns and horizontal rows.

a) Mention the name of the vertical columns.

b) Mention the name of the horizontal rows.

17) Pick the odd one out:

a) Coins, Brass, Copper, Gold ornaments

b) Bromine, Carbon, Hydrogen, Aluminium

18) $2Na+Cl_2 \longrightarrow 2NaCl$

a) Name the product. b) What is the colour of Cl_2 gas.

19) Pick out the alkali metals.

Sodium, Potassium, Calcium, Magnesium, Nickel, Aluminium, Tin, Silicon.

20) Gallium and Cesium melt when kept on the palm. Why?

21) All the elements tend to attain eight electrons in their outermost shell either by sharing or by transfer of electron. The electronic distribution of X = 2, 7 and Y = 2, 8, 1. What is the bond formed between X and Y? How is it formed?

22) Explain coordinate covalent bond with an example.

23) What is an octet rule?

24) Find the odd one out:

a) NaCl, $MgCl_2$, H_2 (based on type of bonding)

b) Li, Na, F (based on metals and non-metals)

25) Fill in the Blanks:

a) If an atom loses an electron, it forms a _____.(Cation/Anion)

b) Ionic compounds are _____ in nature. (solids/liquid)

Part-D

10 x 3 = 30

26) Choose one metal or non-metal that fits each of the descriptions given below and name it. Then write a balanced equation for the reaction that takes place.

(i) A metal that burns in oxygen.

(ii) A Non-metal that burns in oxygen and forms a gas which is used to extinguish a fire.

(iii) A metal that reacts gently with dilute hydrochloric acid.

(iv) A metal that displaces Copper from Copper (II) Sulphate solution.

(v) A metal that floats on water and reacts vigorously with it.

(vi) A metal and a non-metal that reacts between themselves and forms common salt.

27) The following statements are about elements from the families of alkali metals, alkaline earth metals, transition metals, halogens and noble gases. Identify them.

a) It is a soft silvery metal that reacts violently with cold water.

b) It is a gas at room temperature. It reacts violently with other elements, without heating. It is the most electronegative element.

c) It is a liquid metal with a very low melting point.

d) It is the heaviest metal. It is about nearly 3 times heavier than iron.

e) It is the best conductor of electricity and it is used for making coins along with copper.

f) It is a gas used for inflating aeroplane tyres and it is also used by deep sea divers.

g) It is a metal present in the chlorophyll of a plant and it reacts with steam to form corresponding oxide with the liberation of H2.

(i) For each of the elements above, say which of the listed families it belongs to.

(ii) Comment on the position of elements a,b,c and g in the modified Mendeleev's Periodic Table.

(iii) Name the elements that fit descriptions a to f.

28) Based on the order of reactivity.

a) Which element is stored in oil?

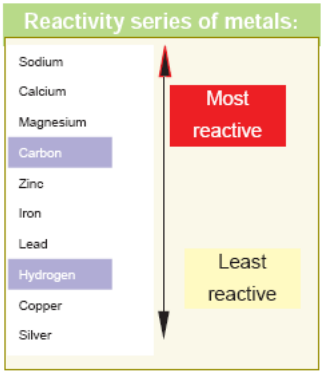
b) Which element will react with cold water?

c) Choose one metal that will react with steam but not with cold water.

d) Name the gas given off during reaction in b and c.

e) Name another reagent that reacts with many metals to emit the same gas.

f) Write balanced chemical equations for the reactions in b, c and e.



29) There are 115 elements known till today. Some are metals and some are non-metals. Metals are usually hard, malleable and ductile and have a metallic lustre . Non-metals are usually soft, do not possess lustre and are not malleable and ductile, but iodine is a non-metal which has metallic lustre . Iodine is also important for our body.

a) Why is iodine important for us?

b) Name a non-metal which is a good conductor of heat and electricity.

c) Comment on the statement "Iodised salt is good for health". Give any two reasons.

30) Relate the names of the following scientists with the statements given below.

(Lavoisier, Dobereiner, Lothar Meyer, Mendeleev, Newlands)

a) Arranged elements with similar chemical properties in a group of three.

b) Arranged elements in the increasing order of their atomic mass.

c) Classified the elements as metals and non-metals.

d) Arranged elements in a groups of seven with increasing atomic masses and eight elements with similar chemical properties kept below the first like eight note in an octave of music.

e) Plotted atomic weight against atomic Volume.

31) a) Complete the table:

Atoms	Atomic Number	Electronic Distribution
Na	11	
Mg	12	
Cl		2, 8, 7

b) Draw the structure of H2O and NH3 molecules.

32) Name the following :

a) An element which forms triple covalent bond.

b) An element which obtains the noble gas configuration of Neon by losing three electrons.

c) An element which gains two electrons to obtain noble gas configuration of Neon.

d) Name a compound which is an exception to the octet rule.

e) In SO_2 molecule, which element is a donor of electrons.

33) Identify the incorrect statements and correct them.

a) When two elements have equal electro negatives, the electron transfer does not take place from one atom to another.

b) When an element has high Ionisation energy, it prefers to form Ionic bond.

c) The electrons which are not involved in bonding are called valence electrons.

d) Benzene is a non polar solvent.

e) Ionic bonds are rigid and directional.

34) The following shows the electronic arrangement of two elements, magnesium and chlorine. These elements react to form an ionic compound called magnesium chloride

a) Answer these questions about magnesium atom and chlorine atom:

(i) Do they gain or lose electons, to form an ion?(ii) How many electrons are transferred?

(iii) Is the ion that is formed positive or negative?

(iv) What is the name of the ion formed?

b) Which noble gas configurations do these ions resemble.

c) Name another non-metal that forms an ionic compound with magnesium,

in a similar reaction with chlorine.

35) Give a single term for the following statements:

a) The tendency of atoms to have eight electrons in the outer shell.

b) Energy required to remove a valence electron to have an isolated atom.

c) The pair of electrons that are not involved in bond formation.

d) Tendency of an atom to attract bonded pairs of electrons towards itself in a molecule.

e) Bonds in which shared electron pair comes from one of the bonded atoms.

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