

Half Yearly Examination 2017-2018

Std. : VII
Subject : Chemistry

Full Marks : 80
Time : 2 Hrs.+15min.

SECTION A [40 MARKS]

Attempt all questions.

I. Fill in the blanks :—

[5x1=5]

- (i) In _____ change new substances are formed.
- (ii) Urea supplies _____ to soil or plants.
- (iii) A neon sign glows with beautiful _____ colour.
- (iv) _____ gas is used in tube lights.
- (v) Symbol of silver is _____.

II. Write the chemical formulae of the following compounds :—

[5x1=5]

- (i) Sodium carbonate
- (ii) Aluminium nitride
- (iii) Magnesium chloride
- (iv) Iron (III) oxide
- (v) Calcium hydroxide

III. Name the following :—

[5x1=5]

- (i) Gas given to patients suffering from respiratory problems.
- (ii) A material consisting of metal mixed with one or more metals or non-metals.
- (iii) Gas mainly used for illumination.
- (iv) The process in which a substance is decomposed into simpler substances by passing electric current through it.
- (v) The noble gas that gives blue or green light in discharge tube.

IV. Balance the following chemical equations :—

[5x1=5]

- (i) $\text{Mg} + \text{CO}_2 \longrightarrow \text{MgO} + \text{C}$
- (ii) $\text{Ca} + \text{N}_2 \longrightarrow \text{Ca}_3 \text{N}_2$
- (iii) $\text{NaNO}_3 \longrightarrow \text{NaNO}_2 + \text{O}_2$
- (iv) $\text{Fe} + \text{O}_2 \longrightarrow \text{Fe}_2\text{O}_3$
- (v) $\text{Mg} + \text{HCl} \longrightarrow \text{MgCl}_2 + \text{H}_2$

V. Which of the following changes are physical changes and which are chemical changes ?

[5x1=5]

- (i) The digestion of food.
- (ii) The melting of ice.

- (iii) The curdling of milk.
- (iv) The glowing of electric bulb.
- (v) The burning of wood.

VI. Write the names of the following compounds :—

[5x1=5]

- (i) Ca_3N_2 (ii) K_2O (iii) NH_4OH (iv) AgCl (v) CuSO_4

VII. Complete the following table :—

[20x½=10]

	<u>Element</u>	<u>Atomic No.</u>	<u>Mass No.</u>	<u>Protons</u>	<u>Electrons</u>	<u>Neutrons</u>
1.	_____	12	24	_____	_____	_____
2.	${}^{40}_{20}\text{Ca}^{2+}$	_____	40	_____	_____	_____
3.	${}^{27}_{13}\text{Al}$	_____	_____	13	_____	_____
4.	${}^{14}_7\text{N}$	7	_____	_____	_____	_____
5.	${}^{16}_8\text{O}^{2-}$	8	_____	_____	_____	_____

SECTION B [40 MARKS]

Attempt any four questions.

VIII. 1) Mention three differences between physical and chemical change.

[3]

2) Write the valency of the underlined element / radicals :

[6x½=3]

- (i) $\underline{\text{P}}\text{Cl}_3$ (ii) $\text{Na}\underline{\text{H}}\text{SO}_4$ (iii) $\underline{\text{C}}\text{aCO}_3$ (iv) $\underline{\text{Fe}}_2\text{O}_3$
 (v) $\underline{\text{N}}\text{H}_4\text{Cl}$ (vi) $\underline{\text{K}}_2\text{CO}_3$

3) Name three chief pollutants of Air.

[3]

4) Write the full form of CFC.

[1]

IX. 1) What is Catalyst ?

[2]

2) Mention three effects of acid rain.

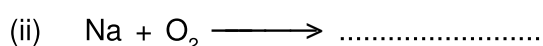
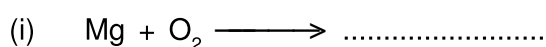
[3]

3) Why is CNG preferred to petrol or diesel as fuel ?

[3]

4) Complete the following equations and balance them.

[1+1]



X. 1) Write the common name of solid carbondioxide. Why is it called so ?

[1+2]

- 2) Mention two uses of carbon dioxide. [2]
- 3) Name the gas used for filling food packages. [1]
- 4) Write one use of each — [4x1=4]
- (i) Helium (ii) Neon (iii) Oxygen (iv) Nitrogen

XI. (1) State the type of reaction — [5x1=5]

- (i) $2\text{KClO}_3 \longrightarrow 2\text{KCl} + \text{O}_2$
- (ii) $\text{Mg} + \text{H}_2\text{O} \longrightarrow \text{MgO} + \text{H}_2$
- (iii) $\text{H}_2 + \text{Cl}_2 \longrightarrow 2\text{HCl}$
- (iv) $\text{AgNO}_3 + \text{NaCl} \longrightarrow \text{AgCl} \downarrow + \text{NaNO}_3$
- (v) $\text{CaCO}_3 \longrightarrow \text{CaO} + \text{CO}_2$

(2) What is "Rust" ? Mention two methods to prevent rusting. [2+2]

(3) Name the catalyst used in the preparation of oxygen from hydrogen peroxide (H_2O_2). [1]

XII. (1) Choose the correct option :— [5x1=5]

- (i) Which of the following is used to fire extinguisher —
- (a) HCl (b) H_2SO_4 (c) KOH (d) CaCO_3
- (ii) In which of the following cases will the mass of the substance change ?
- (a) The freezing of water (b) The burning of wood
- (c) The glowing of an electric bulb (d) The melting of ice.
- (iii) Electrostatic precipitators are used to remove —
- (a) Soot and dust from waste gases in industries.
- (b) Sulphur dioxide from waste gases in industries.
- (c) Lead from petrol.
- (d) Carbon monoxide from air.
- (iv) Which of the following is a noble gas —
- (a) Nitrogen (b) Hydrogen (c) Helium (d) Methane
- (v) Which of the following is the example of physical as well as chemical change —
- (a) Melting of ice (b) burning of candle (c) Curdling of milk
- (d) freezing of water.

(2) Define electrolysis. [2]

(3) What would you observe in following cases — [3x1=3]

- (i) Carbon dioxide is passed through lime water.
- (ii) A jet of hydrogen is lit and introduced to a jar full of oxygen.
- (iii) A burning magnesium ribbon is placed in steam.

XIII. (1) Give Reason :— [2x2=4]

- (a) Air is a mixture and not a compound.
- (b) A burning piece of magnesium continues to burn in carbondioxide, though carbondioxide is a non-supporter of combustion.

(2) Differentiate between the following :— [2x2=4]

- (a) N_2 and N^{3-}
- (b) O_2 and O^{2-}

(3) Draw the orbital diagram (atomic structure) of the given elements :— [2x1=2]

- (a) ${}_{12}^{24}\text{Mg}$
- (b) ${}_{17}^{35}\text{Cl}$