Piyali Halder 25.4.19.

St. Lawrence High School

FOR GOD AND COUNTRY

A JESUIT CHRISTIAN MINORITY INSTITUTION

First Term Examination -2019

Subject – Physical Sc. **Class - VII** **Full Marks : 90**

SECTION - A

Fill in the Blanks : 1X5=5

1. A **Molecule** of an element is made up of atoms of same kind.
2. Photosynthesis is **Chemical** Change
3. A molecule of a **hydrogen** gas element contains one atom.
4. Volume of a cubical box of side 14 cm is **14X14X14=2744** cm^3
5. Motion of smoke particles is an example of **Random** motion.

Choose the correct option

1. Weight of a body of mass 1kg is

a. **1kgf** b. 10kgf c. 100kgf d. none of these

2. The speed of very fast moving objects is measured in

a. m/s b. cm/h c. **km/h** d. m/min

3. If the valency of chlorine is 1 what is the valency of copper in CuCl2 ?

a. 1 b. **2** c. 3 d. 4

4. The greater the intermolecular space, the_____is the cohesion.

a. Greater b. **Lesser** c. Same d. None of these

5. In which if the following reaction does carbon dioxide react with moisture of water ?

a. Respiration b. **Photosynthesis** c. Dissolution d. Rusting

State whether the followings statements is true or false

1. A compound Cannot be split into simpler substances by chemical means. **(False)**
2. Dissolution of glucose is a chemical change. **(False)**
3. Valency of HCO_3 is 2. **(False)**
4. Area of a circle with radious r is $2\Pi r^2$ **(True)**
5. On complete to & fro motion of the pendulum about its extreme position is called 1 oscillation. **(True)**

Name the following

1. What is the process of conversion of a substance from gaseous state to liquid state called ?

Ans. : Condensation

2. What is the name of the process in which a sugar solution changes into alcohol ? Ans.: Fermentation
3. Name a Triatomic gas. Ans. Ozone
4. Name the type of motion that repeats itself at fixed interval of time . Ans. : Periodic
5. Name the internal volume of a container. Ans : Capacity

Match the following :

1. Non - compressible	a. Random motion
2. Motion of a swing	b. Gas
3. Copper	c. Solid
4. Largest thermal expansion	d. Oscillatory motion
5. Motion of a flying mosquito	e. Variable valency

Ans. : (1)-(c) , (2)-(d), (3)-(e), (4)-(b), (5)-(a)

SECTION - B

Very short answer types question.

1. A girl is running at a constant speed of 4m/s, find the time taken to cover a distance of 90m.

Ans. : Given , Speed = 4m/sec.

Distance = 90m

: We known speed = $\frac{\text{Distance}}{\text{Time}}$

= Time = $\frac{\text{Distance}}{\text{Time}}$

= $\frac{90}{4}$ = 22.5 sec.

2. Why does the weight of a body decreases as we go highter ?

Ans. : The meight of a body decreases as we go higher because gravity decreases as we go higher.

3. Define Speed. Write the SI unit of Speed.

Ans. : Speed is defined as the distance travelled by an subject for unit time. SI unit of speed is metre per second (m/s).

4. Name two substances which sublime at room temperature .

Ans. : Naphthalene / Camphor / Iodine / Ammonium Chloride.

5. What do you mean by Endothermic process ? Give an example.

Ans. : The process in which energy / heat is used to complete the reaction are called endothermic process. Eg. dissolution of glucose.

Short answer type question (answer any five)

1. A bus starting from Bangalore covers a distance of 275 km in 5 hrs on Friday evening & returns to bengaluru in 3 hrs early next morning.

Ans. : Average Speed = $\frac{275 + 275}{5+3}$ = 68.3 km / 8hr.

2. Explain why is motion of a bicycle a complex motion ?

Ans. : The motion of bicycle performs both rotatory and translatory motion. The caheds of a bicycle performs rotatory motion and the bicycle itself performs translatory motion. So it is complex motion.

3. Explain why burning of a candle is both a physical & chemical change ?

Ans. : Burning of a candle shows following charges___.

1) The max under the wick gets heated and melts. The molten wax solidifies while flowing down. This charges is physical.

2) A part of molten wax vaporises and burns to form carbon dioxide and water vapour. This is irreversible charge and so chemical charges.

4. What is Slaking of lime ?

Ans. : Slaking of lime -

When a very small amount of water is added to the quick lime, the water quickly vapo rizes out with a hissing sound. With a larger amount of water, a thick white paste of slaked lime is formed. This process is called slaking of lime.

5. What is the valency of the underlined element or radical ?

a. $CaCO_3$ b. $Fe2O_3$ c. Cu_2O

Ans. : (a) 1 (b) 3 (c) 2

6. Write down the chemical formula of the following

a. Ammonium sulphate b. Sodium hydroxide

Ans. : (a) $(NH_4)_2\ SO_4$ (b) NaoH

7. Differentiate between Rectilinear & Curvilinear Motion with suitable example.

Ans. : Rectilinear	Curvilinear
1. Motion along a straight line.	1. Motor along a curved line
2. Eg. a car morning along a straight raod.	2. Eg. a car taking turn on a curve on the raod.

SECTION - C

IV. Long answer question (any 8)

1. Described one activity to show the thermal expansion of a solid, a liquid and a gas.

Ans. : Thermal Expansion :-

To Show the thermal expansion of a solid, a liquid and a gas.

1) Procedure : We place two wooden blocks of same height in front of a wall. We place a metal rod in between the wall and block as shown in the diagram (fig1) we place a pencil belong the frec end of the rod. We heat the rod.

Observation : We will observe that the rod expends and pointer pencil rotates.

2) We fix a transpalent strain to a narrow monthed bottle and fill with coloured water and seal the mouth. Now we place the bottle in a boul of hot water as in big (2).

Observation : We will observe that level of the water in the straw rises as water expands on being heated.

3) We fit a uninflated balloon to the mouth of a bottle. We place the bottle in a pan containing water and heat it.

Observation : We will observe that the balloon will get iflated as air in the bottle expands.

Diagram :

2. Explain an example to show that physical and chemical changes can occur together.

Ans. : Buring of a candle shoms following charges____.

1) The max under the wick gets heated and melts. The molten wax solidifies while flowing down. This charges is physical.

2) A part of molten wax vaporizes and burns to form carbon dioxide and water vapour. This is irreversible charge and so chemical charges.

3. How would you measure the volume of an irregular solid which is insoluble in water using a measuring cylinder. Explain with diagram. Also write the principal behind this method.

Ans. : The find density of an irregular solid.

Procedure - We first find the mass (M) of the irregular solid say a pebble using a physical balance .

Now to find the volume of the solid we follow the steps .

(i) We take a measuring cylinder and fill it partially with water

(ii) We note the initial volume of water as VI.

(iii) We tie the solid with the string and immerse it completely into the water in measuring cylinder.

(iv) We note the new level as V_2 of water.

(v) We find V2-V1=V,as volume of solid.

: Density of irregular solid D=M/V

4. Write 5 differences between mass and Weight.

Ans. :

Mass	**Weight**
1. Amount of Matter contained in a body.	1. Force with which the earth attiracts a body tomards centre.
2. Constant quantity.	2. Varies from place to place.
3. Mass can never be zero.	3. Weight can be zero if no granby acts.
4. S.I. unit is kg.	4. S.I. unit is N
5. Beam or physical balance measuring device.	5. Spring balnce measuring device.

5. Define and give one example for each.

Ans. : (i) Vibratory motion :- The to and fro or back and forth in afixed pattern about its mean position while the rest of the object alumary remains fixed is called viratory motion.

Eg. : string of a sitar is plucked.

(ii) Multiple Motion - The motin which is a combination of two or more types of motion is called multiple motion.

eg. : A drill machine used by a carpenter / a bicyle.

(iii) Random Motion - The motion in which an object changer its direction frequently is called random motion.

Eg. : Motion of flying kite.

(iv) Circulatory motion - The motion of an boject about a fixed point along the circumference of circle, without changing its positin is called circulatory motion.

Eg. : A spinning top.

(v) Non- periodic motion - The motion which does not repeat it self at fixed intervals of time is called non periodic motion.

Eg. : motion of the wheels of a car moving on a busy road.

6. Describe an activity to determine the time period of a simple pendulum .

Ans. : To determine the time period of a simple pendulum.

Procedure : We tie a silk thread to the metallic bob. We displace the bob from its mean position so that the simple pendulum starts oscillating. Using stop watch we record the 20 oscillation time taken. Let this time be = t sec.

: Time period of simple pendulum. T= t/20 second.

7. Explain how atoms, molecules and redicals differ from each toher. Give 1 example for each of them.

Ans. :

Property Independent	**Atom**	**Molecule**	**Radiclas**
1. Existence	Not Capable	Capable	Capabel
2. Charge	Not Charged	Not Changed	Charged
3. Valecing	Has a Valency	Has no Calency	was a valency
4. Number of elemats	Only one	Mare than one	more than one
5. Reacting hature	Directly	Breaks into atom incluich react in	Take part as a unit
6. Example	Hydrogen (H)	Reactin Oxyge (O_2)	Sodium Iron (Nat)

8. What is slaking of lime ? What type of change occurs during this process ? Explain.

Ans. : Slaking of lime -

When a very small amount of water is added to the quick lime, the water quickly vapo rizes out with a hissing sound. With a larger amount of water, a thick white paste of slaked lime is formed. This process is called slaking of lime.

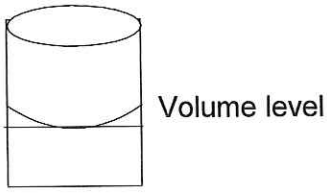
9. Explain the liquid gas interconversion on the basis of intermolecular force. What do you mean by liquefaction ?

Ans. : When a liquid is heated to a part cular temperature, it forms bubbles, called boiling. At this point, a liquid gets converted fast into gaseous state. the molucules move still far apart. The inter molecular force becomes too uncak and a gaseous stale results. Eg water boil at 100c. When a gas is cookd it will change to the liquid belon its boiling point, called condensation. Here molecules of a gas become less energetic and come closer. This is called Liquefaction.

10. Differentiate between concave meniscus and convex meniscus.

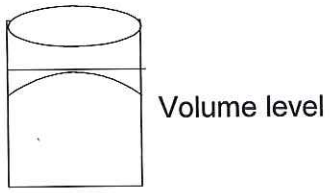
Ans. :

Concave Meniscus

1. The Surface forms curve of liquid dommnuard when filled in a container is called concave meniscus.
2. Water
3. It luet the sides of container
4. 

5. Reading of lower part is taken

Convex Meniscus

1. The Surface forms curve of liquid upurads is called convex meniscus.
2. Mercury
3. It does not stick to sides of container
4. 

5. Reading at the upper most level is taken