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St. Lawrence High School

A JESUIT CHRISTIAN MINORITY INSTITUTION

Second Term Examination - 2019

Subject–Physical Science	**Class-8**	**Full Marks:80**
Duration: 2 hr 30 mins	**ANSWER KEY**	**Date 01.08.2019**

SECTION - A

I. Choose the correct answer. 1X5=5

1. Which of the following is an element?

   (a) **Hydrogen** (b)Salt

   (c)Water (d)Glucose

2. What is the valency of Mg in Mg_3N_2?

   (a)1 (b)3

   (c)**2** (d)41

3. The image formed by a convex mirror is always

   (a) Real (b)**Virtual**

   (c)Inverted (d)Magnified

4. A running train possesses

   (a) Potential energy (b)Light energy

   (c)**Kinetic Energy** (d)heat energy

5. Which among the following materials reacts with water most vigorously?

   (a) **Sodium** (b)Zinc

   (c)Magnesium (d)Iron

II. Fill in the blanks:-
1X5=5

1. The removal of hydrogen from a substance is called **oxidation**.
2. 1Kilojoule=**1000**Joules.
3. Kinetic and potential energy are two form of **mechanical energy**.

4. The combining capacity of an element with other elements is called its **valency**

5. The rate of doing work or the rate of using energy is known as **power**.

III) Name the following: - 1X5=5

1. The mid-point of a spherical mirror. **Pole**

2. Shortest distance between the starting and ending positions of the point where the force is applied. **Displacement**

3. The bending of light rays when they pass from one transparent medium to another. **Refraction**

4. The phenomenon in which a substance gets vaporized without melting. **Sublimation**

5. The combining capacity of an element with other elements. **Valency**

SECTION B

IV. Very short answer type questions:- **2X5=10**

1. Write two conditions necessary for work to be done.

Ans. two conditions necessary for work to be done are as follows:

I. There should be a force applied to do the work

II. There should be displacement in the direction of the force applied

2. The focal length of a spherical mirror is 8cm. Find its radius of curvature.
Ans. The radius of curvature = 2 x focal length = 16 cm.

3. Name the compounds FeO and Fe_2O_3.
Ans: The compounds are Iron (II) oxide and Iron (III) oxide respectively.

4. State the conditions under which hydrogen is made to react with nitrogen in the Haber's process.

Ans. The conditions for Haber's process are as follows

I. Pressure of 200 atmospheres

II. Temperature of 500 degree Celsius

III. Iron as catalyst

IV. Molybdenum as promoter optional

5. A force of 40N is applied on a moment of force object at a distance of 2m

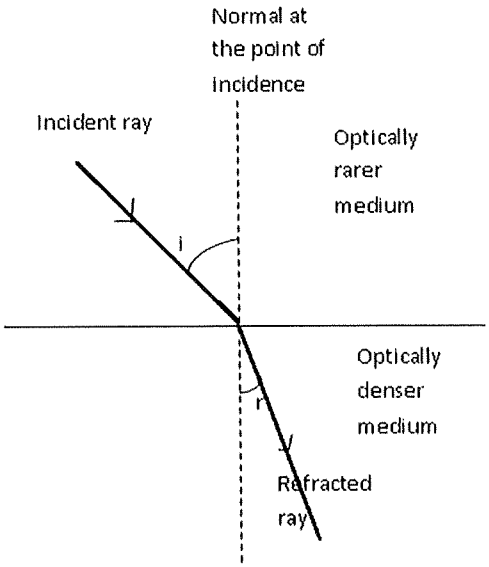
formthepivoted point.

Ans. The moment of force is 80 Newton meter

SECTION C

V. Short Answer type Question(any 5) **3X5=15**

1. State the laws of refraction with diagram.



Ans. The two laws of reflection are as follows

I. The incident ray the refracted ray other normal at the point of incidence lie in the same plane.

II. the ratio of the speed of light in the refracted medium to the speed of light in the refracted medium is a constant for a given pair of medium.

2. Why do war tanks have broad steel chains?

Ans. Water tanks have broad steel chains in place of wheels to increase the surface area which enables a lowering of the pressure applied by the heavy tanks while moving on sandy or muddy soil.

3. Which of these exert greater pressure on the ground for a given thrust-

a) Pointed heels.

b) Flat sandals? Give a reason for your answer.

Ans. Pointed heels exerted greater pressure than flat sandals because the cross sectional area of the pointed heel is less than the flat sandals.

4. Write 3 differences between energy and power.

Ans. Three differences between energy and power are as follows

I. Energy is the capacity to do work while power is the rate of the work done.

II. The unit of energy is joule while that of power is watt

III. the energy can change on the motion of the body but the power is determined at a moment or as an average

5. Give 3 examples to show that hydrogen is a reducing agent.

Ans: The three examples to show that hydrogen is a reducing agent are as follows:

i. It reacts with sulphur to give hydrogen sulphide

ii. It reacts with Zinc oxide to give Zinc

iii. It reacts with lead oxide to give lead.

6. Carbon dioxide turns line water milky. Write a chemical equation for the reaction.

Ans: $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$

7. Give three points of difference between a mixture and a compound.

Ans. The three points of differences between a mixture and compound are as follows.

Mixture	Compound
The properties of mixture contain the properties of the constituent elements	The properties of a compound is different from that of his constituent elements
The components of a mixture can vary from one mixture to another	The components of a compound combine in a fixed ratio
The components of a mixture can be separated by physical means	The components of a compound cannot be separated by physical means.

SECTION - D

2. Long answer questions **5X8=40**

1. Write a note on the oxy-hydrogen flame.

Ans. Oxyhydrogen flame is used for welding and cutting metals. The two gases Oxygen and hydrogen are pass through different pipes mix at a point where the mixture is kindled. High temperature of 2000 degree Celsius flame is produced which is called the oxyhydrogen flame.

2. The sun is the ultimate source of all energy. Explain.

Ans. The sun is the ultimate source of energy. The source of the store chemical energy in fuels the energy of flowing rivers and wind energy can be traced to the sun. the process of conversion of solar energy into electrical energy makes an energy chain in nature.

3. Write 2 differences between kinetic energy and potential energy. Find the potential energy of a stone of mass 7kg raised to a height of 80 m($g=10m/s^2$).

Ans. The two differences between Kinetic energy and potential energy as follows.

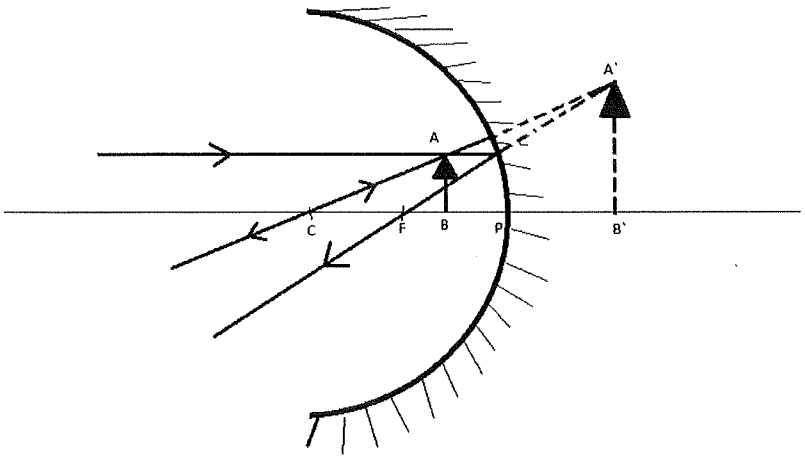
I. Kinetic energy is the energy possessed by a body by virtue of its motion while potential energy is the energy possessed by virtue of its position or state

II. Kinetic energy is directly related to the temperature of a body at potential energy is not

The potential energy of the stone = mxgxh= 7 Kg x80mx10m/s^2 = 5600 joule

4. Draw a ray diagram of image formed by a concave mirror to show the nature of the

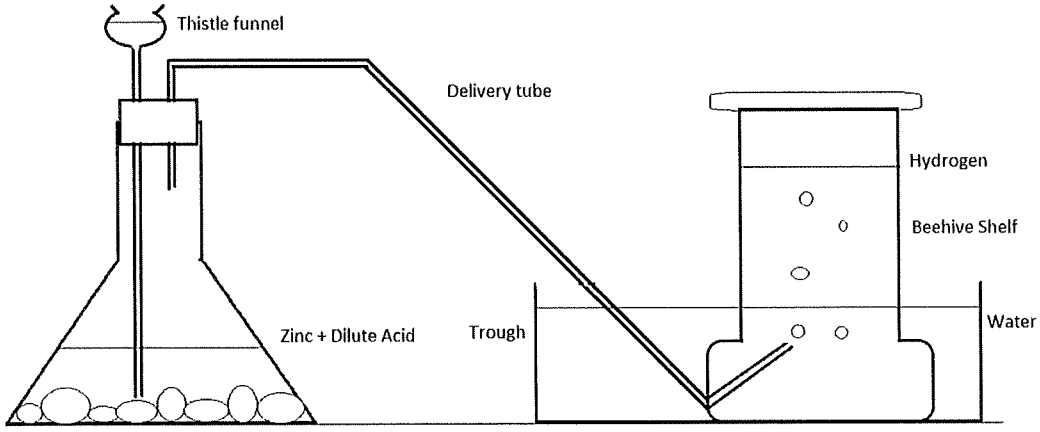
image formed when object is between pole and focus.



Ans: Nature of the image formed is virtual, erect and enlarged. The image is formed behind the mirror.

5. Explain have hydrogen is prepared in the laboratory (with diagram)?

Ans. hydrogen is prepared in the laboratory by the action of dilute hydrochloric acid sulphuric acid on granulated zinc. The gas is collected by the displacement of water.



6. Write (i) 2 uses of a concave mirror

ii) 3 uses of convex mirror.

Ans. I. Two uses of a concave mirror are as follows

I.1. a concave mirror is used as shaving mirror

I.2 concave mirror is used as the reflector in torches and headlights

II. Two uses of a convex mirror are as follows

I1. A convex mirror is used as a rear view mirror in automobiles

I2. a convex mirror is used as a vigilance mirror in departmental stores

7. State 5 differences between- real and virtual image.

Ans. 5 differences between real and virtual image are as follows

Real image	Virtual image
a. When two or more light rays actually intersect a real images formed	a. When two or more light rays intersect only on extending them backwards a virtual image is formed
b. The real image can be obtained on a screen	b. The virtual image cannot be obtained on a screen
c. The real images always inverted in nature	c. The virtual images always erect in nature
d. The real image is formed on the same side of the mirror as object	d. The virtual images formed behind the mirror
e. A pinhole camera creates a real image	e. A plane mirror creates a virtual image

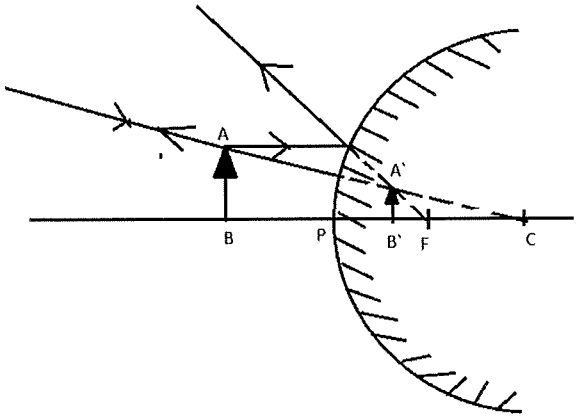
8. What is a chemical reaction? How we can make chemical equation more informative.

Ans. Chemical reaction is a chemical change when the substance call the reactants undergo the change to produce the products which are different in nature from the reactance. They are represented by a chemical equation when the reactants are written on the left hand side while the products or written on the right-hand side.

A balanced chemical equation tells us how many atoms and molecules of which reactions give you how many atoms of which products does making the chemical equation more informative.

9. Draw a ray diagram and also write the nature of the image formed using a convex mirror when object is at any other point.

Ans: The image is virtual, erect and diminished. It is formed behind the mirror.



10. (i)Why does an iron ship float on water but an iron nail sinks in water?

Ans. The army ship floats on water because its average density is less than that of the iron nail which consists of water only iron only.

(ii) A block of aluminum of density 2700kg/m^3 has a volume of 250 cm^3. Find the mass of the block.

Ans: Mass = density x volume= 2700 x 250 / 1000 = 0.675 Kg