(7)

**GREENLAWNS HIGH SCHOOL**
**TERMINAL EXAMINATION YEAR 2017**

**SUBJECT: PHYSICS** **CLASS: IX**
**TIME: 2 HOURS** **MARKS: 80**

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All answers to be written on the answer booklet provided to you. You will not be allowed to write during the first 10 minutes. This time is to be spent in reading the question paper. The time given at the head of this paper is the time allowed for writing the answers.

SECTION – A (40 MARKS)
Attempt **all** questions from this section

**Q.1 A) Fill in the blanks. (Write only answers.)** **(5)**

1) Solar cells are made up of semi-conductors like _____ and _____.
2) The rate of flow of electrons in a direction is called the _____current in that direction.
3) In a periscope, two parallel plane mirrors each inclined at _____ with the vertical walls are placed facing each other.
4) 1 kgf = _____N
5) The geometric centre of the spherical surface of the mirror is called as _____ of the mirror.

**B) Name the following.** **(5)**

1) The external cause which tends to change the state of rest or the state of motion of an object.
2) The device used to measure the amount of heat.
3) The type of mirror used as dentist's head mirror.
4) The device used to control the current in an electric circuit.
5) The substance which almost have no electrons and offer very high resistance in the path of current

**Q.2 A) Define the following.** **(5)**

1) Aperture.
2) Alternating current.
3) Acceleration due to gravity.
4) Nuclear fusion.
5) Heat.

**B) Answer the following.** **(5)**

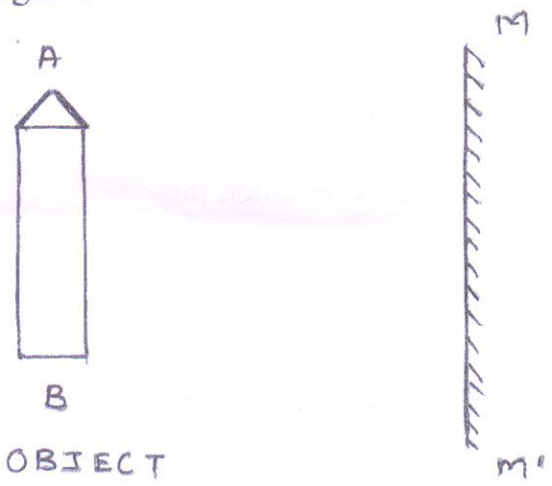
1) State 1st law which governs the flow of energy. (1)
2) Draw a ray diagram to show formation of an image by a concave mirror for an object placed between centre of curvature and focus. State the 3 characteristics of an image. (4)

**Q.3 A) Differentiate between the following based on the points given in the brackets.** **(4)**

1) Heat and Temperature (S.I. Unit)
2) Primary cell and Secondary cell (Energy conversion)
3) The image formed by concave mirror and plane mirror (Definition)
4) Galvanometer and Voltmeter (Its Arrangement in a circuit)

**B) Answer the following.** **(6)**

1) Write any 2 examples of energy degradation. (2)
2) The given diagram shows an object AB in front of a plane mirror MM'. Copy the diagram and complete it by showing path of two rays from each point A and B of the object to show the formation of its image. Also label the diagram. (4)




**Q.4 A) Give scientific reasons.** **(4)**

1) A cyclist riding along a level road does not come to rest immediately after he stops.
2) When a shot is fired from a gun, the gun gets recoiled.

**B) Solve the following.** **(6)**

1) A water heater draws current 16 A at 240 V. Find the resistance offered by the heater to the flow of current. (2)
2) A wire carries current of 0.4 A. i) Find the amount of charge that will pass through the cross section of wire in 20 seconds. ii) How many electrons will flow in time interval if charge on one electron is $1.6 \times 10^{-19}$ C ? (4)

## SECTION B (40 MARKS)

(Attempt **any 4** complete questions)

**Q.5 Answer the following questions.** **(10)**

A) Give 1 example of frictional force. And write 2 general characteristics of non-contact forces. (3)

B) i) There are 2 objects both are showing temperature 78°C. This means that they have equal amount of heat. Is this statement true? Support your answer with reason? (2)

ii) What is the relationship between Celsius and Fahrenheit? Convert -10° into Kelvin. (2)

C) State Ohm's Law. Explain any 2 factors affecting the resistance of a conductor. (3)

**Q.6 Answer the following questions.** **(10)**

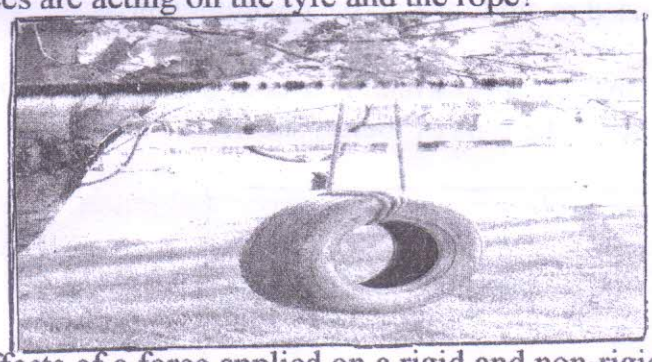
A) How does the position and size of an image change when object moves away from the convex mirror? (2)

B) Write the function of the following in an electric circuit. (2)

i) Key ii) Galvanometer

C) What is bio-mass? Write any 1 use of bio-mass. (2)

D) Which forces are acting on the tyre and the rope? (2)



E) State the effects of a force applied on a rigid and non-rigid body. (2)

**Q.7 Answer the following questions.** **(10)**

A) An object is kept 75 cm in front of a plane mirror. If the object is moved 20 cm towards the mirror. What is the distance between 1st position of an object and the second image formed? (2)

B) State the first law of motion. (2)

C) How does series and parallel circuits differ from each other? (2)

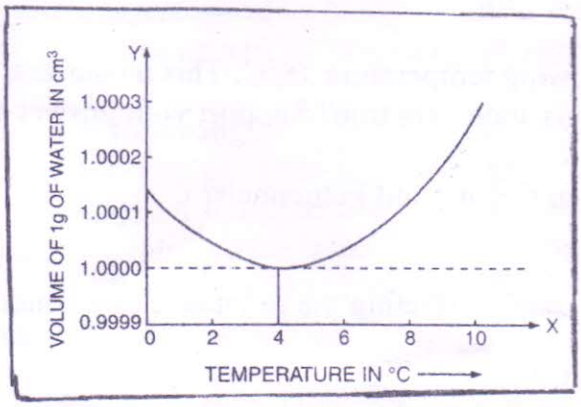
D) Draw a neat labeled diagram of a simple electric circuit using following components. (Label the components as it is given in the question) (4)

A- A device for measuring magnitude of a current.
B- A Tapping key.
C- A source of a electric current.
D- A device obtaining variable resistance.
E- A device for measuring potential difference.
F- A heater.

**Q.8 Answer the following questions.** **(10)**

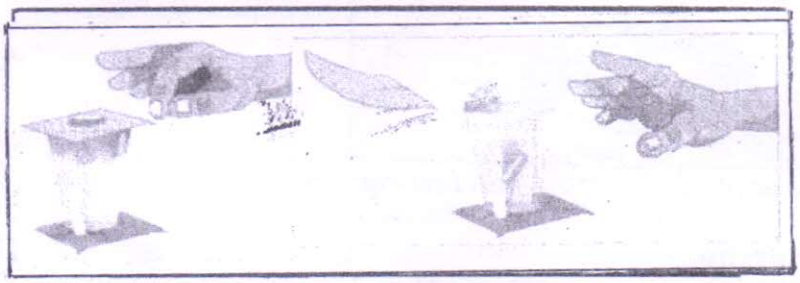
A) A convex mirror forms an image of an object placed at a distance 20 cm in front of the mirror at a distance 5 cm. Find the focal length of the mirror. (2)

B) Answer the following questions with the help of a given graph. (4)




i) How is the volume of water changing from 0°C to 4°C?
ii) At what temperature the density of water will be maximum?
iii) Which phenomenon of water is represented by above graph?
iv) Name the apparatus used to study the above phenomenon.

C) Define Inertia. Name the factor on which inertia of a body is dependent on and explain how? Identify the type of Inertia shown in the picture. [4]



**Q.9 Answer the following questions.** **(10)**

A) Write any 2 causes of global warming. Also give 2 technological measures to minimize the impact of global warming. (4)

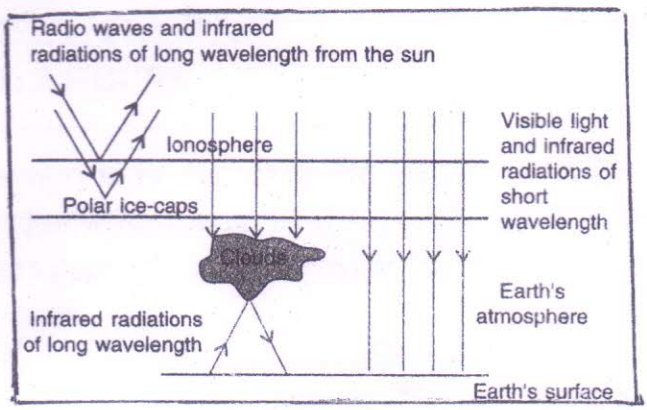
B) i) An object is placed symmetrically between two plane mirrors inclined at an angle of 40°. Find the number of images formed. (2)

ii) The image of an object placed at a distance of 50 cm on principal axis of a concave mirror from its pole, is formed on the object itself. (2)
Find a) Focal length b) Linear magnification of the mirror.

C) A ball is dropped from the rest and falls freely under gravity. Calculate the distance covered by it in the first 10 Seconds. ($g = 9.8\ ms^{-2}$) (2)

**Q.10 Answer the following questions.** **(10)**

A) Identify the phenomenon shown in the picture. (1)




B) A force of 20 N acts on a body of mass 5 Kg for 3 seconds, initially at rest. (3)
Calculate i) the velocity acquired by the body. ii) change in momentum of the body.

C) i) Copy the figure give below and complete it by drawing its mirror image. (2)

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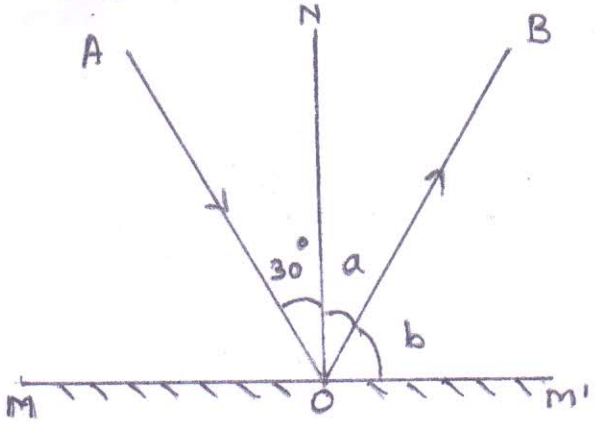
ii) In the following figure, find angle b. (2)




D) Describe any 2 ways for the efficient use of electrical energy. (2)