SAMAGRA SHIKSHA, KERALA

E 906 -Ph

SECOND TERMINAL EVALUATION 2018-19

Set - A

PHYSICS

Standard: IX

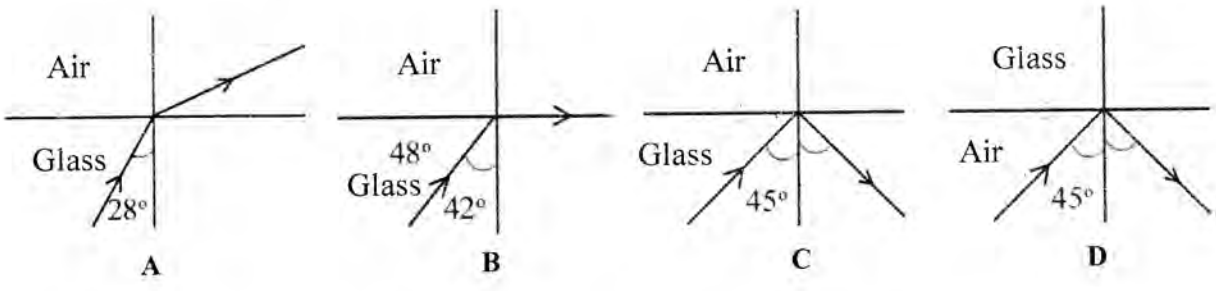
Time : 1½ Hour
Total Score : 40

Instructions

- First 15 minutes is given as cool off time. This time is to be spent for reading and understanding the questions.
- Answer the questions based on instructions.
- Answer the questions according to score and time

Answer any FOUR questions from 1 to 5. Each question carries 1 score. **(4 x 1 = 4)**

1. From the following, find out the odd one based on centre of gravity.
   [Bangle, Sphere, Ring, Boomerang] (1)
2. Identify the relation between the first pair and complete the second.
   Water stored in a dam : Potential energy
   Bullet fired from gun : ..... (1)
3. From the following figures, select the one that represents total internal reflection. (1)



4. Current flows through an electrolyte due to the flow of ----------. (1)
   (Protons, Ions, Free electrons)
5. Correct the following statements by modifying the underlined terms if it is wrong. (1)
   a) The midpoint of lens is called <u>focus.</u>
   b) <u>Far sightedness</u> can be corrected using a concave lens of suitable focal length.

Answer any FOUR questions from 6 to 10. Each question carries 2 score. **(4 x 2 = 8)**

6. If you have to load paddy and hay in the same truck which should be packed at the bottom. What is the reason? (2)

7. A, B, C, D are four marbles of equal mass placed in a wiring channel as shown in figure. B, C, D are arranged in the channel so as to move freely. Marble A is allowed to roll down as shown. As it hits the balls, ball D moves away from the other balls.

State the law related to this. (2)

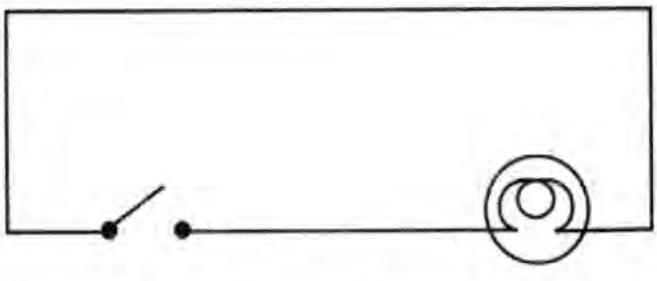
8. Tabulate the following statements in the given table.
   - Quantity of matter
   - Unit is kgwt
   - It is a scalar quantity
   - It is the force of attraction exerted by earth on a body

Mass	Weight
•	•
•	•

(2)

9. A body can attain potential energy by various ways. One is due to its position. Suggest another method to attain potential energy. Give an example.. (2)

10. Observe the figure.



Will the bulb glow when the switch is turned ON? Give reason? (2)

Answer any FOUR questions from 11 to 15. Each question carries 3 score. **(4 x 3 = 12)**

11. a) In which unit, the power of lens in expressed? (1)

    b) Calculate the power of a convex lens of focal length 100 cm. (2)

12. Three situations related to work are given below.

i) Pushing an object of mass 10 kg across a horizontal floor.

ii) Lifting an object to a height of 5 m

iii) A boy standing still with an object on his head

a) In which of the above situations work is not done? Give reason. (2)

b) In which situation does a change in kinetic energy take place without a change in potential energy? (1)

13. A flower pot of mass 20 kg. is placed on sunshade at a height of 5 m from the surface of earth ($g = 10\ m/s^2$)

a) Calculate the potential energy when the pot is on the sunshade. (1)

b) If the flower pot falls down. what is the kinetic energy when it just touches the ground? (1)

c) What is the energy conversion when it falls down? (1)

14. Motion of a body along a circular path is an example for circular motion.

a) Write whether the body has acceleration when it is in uniform circular motion. Justify your answer? (2)

b) What change occurs in the motion of the object in circular motion if the centripetal force is lost? (1)

15. When a man jumps onto the shore from a boat, the boat moves backward.

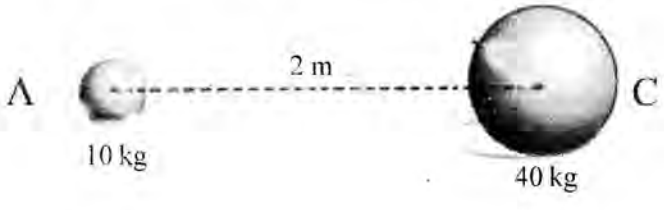
a) State the law related to this situation. (1)

b) Action and reaction do not cancel each other. Why? (1)

c) From where does the man get external force for jumping? (1)

Answer any <u>FOUR</u> questions from 16 to 20. Each question carries 4 score. (4 x 4 = 16)

16. Analyse the figure and answer the following questions.

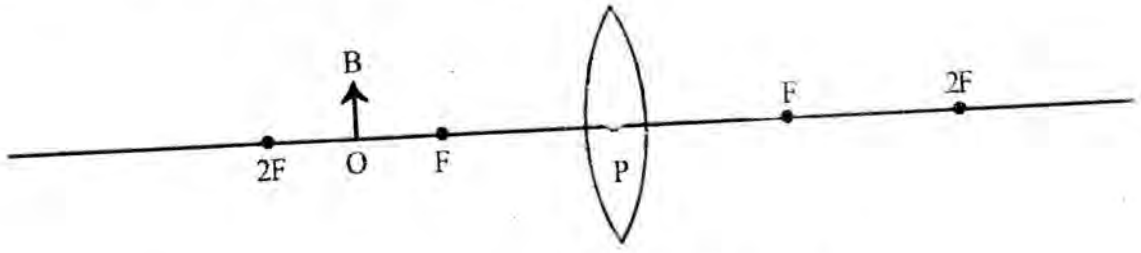


a) Calculate the attractive force between A and C. ($G = 6.67 \times 10^{-11}\ Nm^2/kg^2$) (2)

b) If the mass of A is halved what change occurs to the attractive force? (1)

c) Suggest a method for increasing the attractive force between A and C without changing their masses. (1)

17. Observe the figure given below.



a) Draw the ray diagram of image formation of the object OB. (2)

b) Write any two features of the image. (2)

18. An electric toy car of mass 100 g moves with a velocity of 2 m/s.

a) Calculate the kinetic energy possessed by the car. (2)

b) Write the energy conversion that takes place in an electric motor. (1)

c) Name two devices that make use of the above energy conversion. (1)

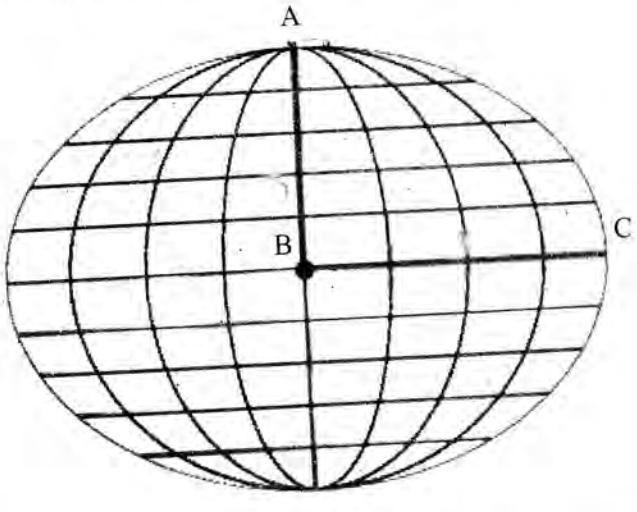
19. Some people have the defect of the eye caused due to the curvature of the vertical surface of the eye lens being greater than that of the horizortal surface or viceversa.

a) Name the eye defect caused by this. (1)

b) How can this defect be rectified? (1)

c) Design two posters for promoting the importance of eye donation. (2)

20. A, B, C are three different places on earth.



a) At which place on the earth, the value of 'g' is maximum? Justify your answer. (2)

b) Calculate the weight of an object of mass 50 kg on the surface of the earth ($g = 10\ m/s^2$). (1)

c) What is the mass of this object on the moon? (1)