KALPAVRUKSHA MODEL SCHOOL

Answers of Assignments-2

Class: VIII **Sub: Physics** **Date: 31.07.2021**

Topic: FORCE AND FRICTION

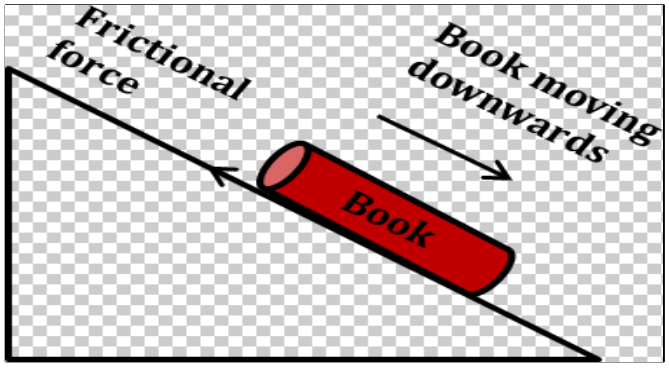
I. Answers:

1. **Define contact and non-contact forces.**
   ANS: **Contact force:** Forces which act only when there is physical contact between two interacting objects are known as Contact forces.
   Non-contact force: Forces which can act without physical contact between objects, i.e. those that can act from a distance, are called non-contact forces or field forces.

2. **Whether you run, walk, stand still, sit, or lie down, there is force acting on your body all the time. Name that force.**
   ANS: Gravitational force is acting on your body all the time whether you run, walk, stand still, sit, or lie down.

3. **What kind of friction comes into play:**
   (a) when a block of wood kept on table moves slowly- Sliding friction
   (b) When a block of wood kept on table just tends to move (or slip)-static friction
   (c) When a block of wood kept on cylindrical iron rods moves-rolling friction

4. **Suppose your writing desk is tilted a little. A book kept on it starts sliding down. Show the direction of frictional force acting on it.**
   ANS: The force of friction always opposes the motion of one object over another object.So, the force of friction acts in a direction opposite to the direction in which an object moves.



5. **Iqbal has to push a lighter box and Seema has to push a similar heavier box on the same floor. Who will have to apply a larger force and why?**
   ANS: Seema has to apply larger force because her box is heavier than the iqbal box.

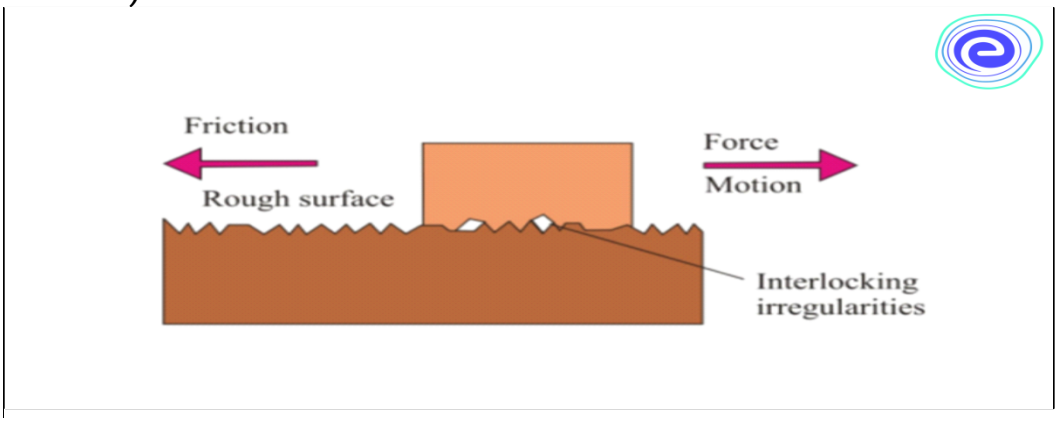
6. {a} least friction-smooth surface
   {b} too much friction-rough surface

7. **What is the direction of force of friction acting on a moving object?**
   ANS: the direction of force of friction acting on a moving object is opposite to the direction of motion of the object.

8. **When a pencil cell is released from a certain point on an inclined wooden board, it travels a distance of 35 cm on floor A before it comes to rest. When the same pencil cell is released from the same point on the same inclined board, it travels a distance of 20 cm on floor B before coming to rest. Which floor, A or B, offers greater friction? Give reasons for your answer.**
   ANS: Floor B applies greater friction because it covers less distance than its irregular surface.

9. **What is the cause of friction? Explain with the help of a labeled diagram.**
   ANS: causes of friction
   a) Nature of the surface in contact.
   b) Mass of the object.

a)



b)

10.Why do tiny bits of paper get attracted when brought close to a plastic pen or comb, which have recently been rubbed?

ANS: Because of Electrostatic force, when the plastic pen is rubbed in dry hair, it attracts tiny pieces of paper. Comb/plastic pen is charged after rubbing.

11. **What is the SI unit of Force?**

ANS: The SI unit of force is Newton. (N)

12. **Which force acts from a distance and pulls iron objects?**

ANS: Magnetic force acts from a distance and pulls iron objects.

13. **Can balance force bring about any change in the state of motion?**

ANS: NO, balance force cannot bring any change in the state of motion.

14. **What happens to the speed of an object moving when it is pushed in the direction of motion?**

ANS: Suppose we are moving on a bicycle at a certain speed.Now,if someone pushes the moving bicycle from behind, then the speed of the bicycle increases and it will move faster in the direction of motion.

15.**Two forces 200N and 300N acting on a body in the same direction. What is resultant force?**

ANS: Two forces 200N and 300N acting on a body in the same direction. The resultant force is 200N+300N=500N. If the two forces applied to an object act in the same direction, then the resultant force acting on the object is equal to the sum of the two forces.

16. **Write a note on the types of contact and non-contact forces.**

ANS: **Types of non-contact forces:**

- **Magnetic Force:** Force exerted by a magnet on another magnet or on magnetic substances is called magnetic force. A magnet can exert force even without coming in contact, thus it is a non-contact force.
- **Example –** A magnet attracts the opposite pole of another magnet and repels the similar pole of another magnet.
- **Electrostatic Force:** Force exerted by a charged body is called electrostatic force. A charged body attracts an uncharged body. A positively charged body attracts a negatively charged body and repels a positively charged body without coming in contact, thus it is a non-contact force.
- **Example –**Electrostatic force is responsible for raising our body hair when we try to take off a Terylene or polyester shirt in the dry weather.

- **Gravitational Force:** Force exerted by earth, moon, sun and other planets is called gravitational force. Earth attracts all objects towards it. Similarly, all other planets along with the moon attract all objects towards them. Since, earth attracts all objects even without coming in contact, thus gravitational force is a non-contact force.
- **Example –** When anything is released from a height, it falls over the ground because of the gravitational pull of earth.

  Types of contact forces:

  Muscular Force: -Force caused by the action of muscles is called muscular force. In other words, force resulting from the action of muscle is called muscular force. Muscular force is applied only after interaction with the object. Hence it is a type of contact force.

  Example: – While kicking a ball, the player applies force over the ball using his leg muscles.
- **Friction:** Force acting between the surfaces of two objects is called the force of friction. Force of friction always acts in the opposite direction of the movement of the object. Force of friction is acting over all the moving objects.
- **Example –** A moving football stops after going to a certain distance. This happens because of the force of friction between the surface of ground and the surface of football.

17. **What is the direction of force of friction acting on a moving object?**
    ANS: the direction of force of friction acting on a moving object is opposite to the direction of motion of the object.