INTERNATIONAL INDIAN SCHOOL BURAIDAH
WORKSHEET FOR THE ACADEMIC YEAR 2026-27
Class-9 Subject: Physics
CH# 7 Work Energy and Simple Machines

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1. A boy pushes a wall with a force of 50 N but the wall does not move. The work done by the boy on the wall is
(a) 50 J (b) 0 J (c) 20 J (d) 40 J

2. A goalkeeper stops a ball by applying a force in the direction opposite to the motion of the ball. The work done by the goalkeeper on the ball is
(a) positive (b) zero (c) negative (d) equal to the ball's kinetic energy.

3. A girl carries a heavy box horizontally across a room at constant velocity. The work done by the upward force she applies on the box is
(a) equal to mgh (b) positive (c) zero (d) negative.

4. If the velocity of a vehicle is doubled, its kinetic energy becomes
(a) 2 times (b) 4 times (c) 1/2 times (d) 3 times.

5. A ball of mass m is thrown upward with velocity v. At its highest point, its kinetic energy is
(a) $1\2\ mv^2$ (b) mgh (c) zero (d) $1\2\ mv^2$ + mgh

6. The mechanical advantage of a fixed pulley is
(a) greater than 1 (b) less than 1 (c) equal to 1 (d) dependent on the load.

7. A weightlifter holds a 100 kg barbell steady above her head for 10 seconds. The work done by her on the barbell during this time is
(a) 1000 (b) 10000 (c) 980 (d) 0

8. An inclined plane has a length of 5 m and a height of 1 m. Its mechanical advantage is
(a) 1 (b) 5 (c) 0.2 (d) 50

This question consists of an Assertion (A) and a Reason (R). Read the Assertion and Reason and choose the appropriate answer.

(a) Both A and R are true, and R is the correct explanation of A.
(b) Both A and R are true, but R is not the correct explanation of A.
(c) A is true, but R is false.
(d) A is false, but R is true.

9.Assertion (A): The kinetic energy of a freely falling object increases as it falls.
Reason (R): As the object falls, its potential energy decreases and is converted to kinetic energy, keeping mechanical energy constant.

10. Assertion (A): Simple machines reduce the total amount of work to be done.
Reason (R): Simple machines change the magnitude or direction of the applied force.

ANSWER THE FOLLOWING

11. Explain the three classes of levers in detail with examples, and mention the mechanical advantage of each.

12. A fielder threw a cricket ball of mass 200 g to a height of 10 m above the ground How much potential energy does the ball have at its maximum height? ($g = 10\ m\ s^{-2}$)

13. Define kinetic energy and potential energy. Using the example of a ball thrown vertically upward, explain how energy is transformed between these two forms.

14. A jet aircraft of mass 15000 kg approaches an aircraft carrier at 252 km h^{-1}. A wire exerts a constant backward force of 367500 N to stop it. Calculate: (a) the initial kinetic energy, and (b) the stopping distance.

15. A man of mass 60kg runs up a flight of 30 steps in 40s. If each step is 20cm high, calculate his power.