

**O Level Pure Physics MCQs**

**Energy, Work and Power Test 2.0**

Q1

A 100 W spotlight has an efficiency of 40%. How much light energy can the spotlight produce in one hour?

- A 144 kJ
- B 216 kJ
- C 360 kJ
- D 600 kJ

Q2

17. When a tennis ball drops onto a hard and smooth horizontal surface, it bounces up and down in the air. The height of each bounce gradually reduces until the ball stops moving.

Which of the following statements is true?

- A The kinetic energy of the ball is constant.
- B The potential energy of the ball is constant.
- C The sum of the kinetic energy and potential energy of the ball is constant
- D The sum of the kinetic energy and potential energy of the ball is not constant.

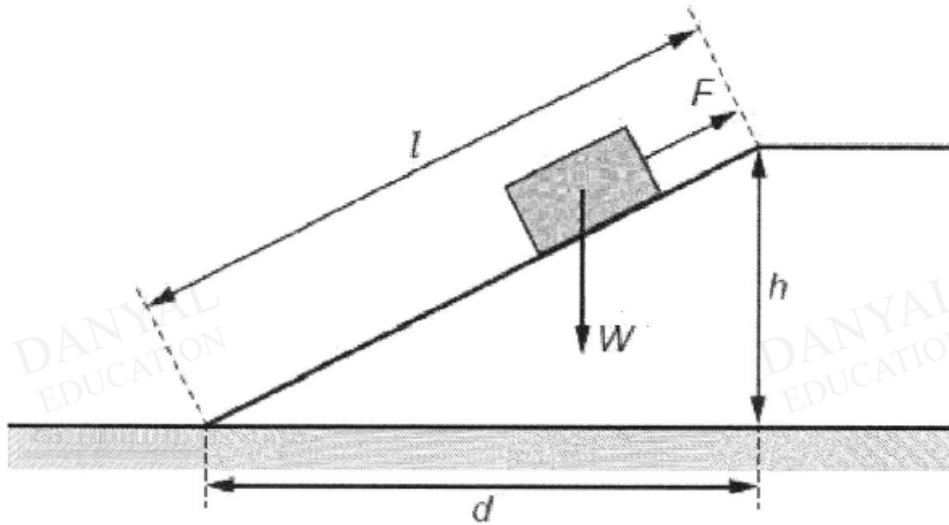
Q3

18. A ball is released from a height  $h$  above a table. The air resistance is assumed to be negligible and 50% of its kinetic energy is lost at each bounce. What is the speed of the ball right before it touches the ground for the third bounce?

- A  $\frac{gh}{\sqrt{4}}$
- B  $\frac{gh}{\sqrt{2}}$
- C  $\sqrt{\frac{gh}{4}}$
- D  $\sqrt{\frac{gh}{2}}$

Q4

A constant force  $F$  pulls a block of weight  $W$  up the slope shown.

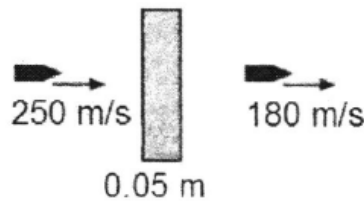


How much work is done in pulling the block up the slope?

- A  $F \times h$                       B  $F \times l$                       C  $W \times d$                       D  $W \times l$

Q5

When a bullet of mass 0.15 kg moving at 250 m/s strikes a metal plate of thickness 0.05 m, it emerges with a speed of 180 m/s as shown in the figure below.



Find the frictional force acting on the bullet as it is going through the metal plate.

- A 1400 N                      B 2260 N                      C 22 600 N                      D 45 200 N

Q6

A rock climber of weight 600 N climbs up a rock face of vertical height 300 m in 1 hour. What is the average power she generates against gravity during this time?

- A 0.020 W                      B 50 W                      C 1800 W                      D 7200 W

Q7

Which of the following units is a symbol for the unit of energy?

- i J
- ii kWh
- iii W

- A** i only      **B** i & ii only      **C** i & iii only      **D** i, ii & iii

Q8

A boy, who weighs 50 N, runs up a flight of stairs 6.5 m high in 7 seconds.

How much power does he develop?

- A**  $\frac{6.5}{50 \times 7} \text{ W}$       **B**  $\frac{7}{50 \times 6.5} \text{ W}$       **C**  $\frac{50}{7 \times 6.5} \text{ W}$       **D**  $\frac{50 \times 6.5}{7} \text{ W}$

Q9

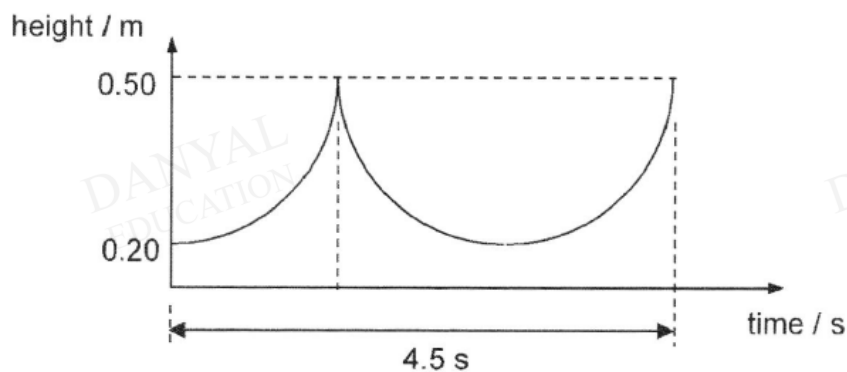
A 100 g object drops from a 10 m building.

What is the speed of the object when it is 4 m away from the floor?

- A** 4 m s<sup>-1</sup>      **B** 6 m s<sup>-1</sup>      **C** 8.0 m s<sup>-1</sup>      **D** 11 m s<sup>-1</sup>

Q10

A graph of the height of a swinging pendulum bob against time is shown below. The pendulum bob has a mass of 200 g.



What is the maximum gain in gravitational potential energy of the pendulum?

- A** 0.40 J      **B** 0.60 J      **C** 0.80 J      **D** 1.00 J

**Answers**

**Energy, Work and Power Test 2.0**

Q1 A

Q2 D

Q3 D

Q4 B

Q5 D

Q6 B

Q7 B

Q8 D

Q9 C

Q10 B

DANYAL  
EDUCATION

DANYAL  
EDUCATION

DANYAL  
EDUCATION

DANYAL  
EDUCATION

DANYAL  
EDUCATION