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## **2.3 Work, Energy & Power**

Easy



# **PHYSICS**

## **IB HL**

# 2.3 Work, Energy & Power

## Question Paper

Course	DP IB Physics
Section	2. Mechanics
Topic	2.3 Work, Energy & Power
Difficulty	Easy

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Time allowed: 20  
Score: /10  
Percentage: /100

### Question 1

Which feature of a force-extension graph represents the work done on a material under tensile stress?

- A. Gradient
- B. Area
- C. y-intercept
- D. x-intercept

[1 mark]

### Question 2

What is a material with a high breaking stress described as?

- A. Strong
- B. Brittle
- C. Ductile
- D. Elastic

[1 mark]

### Question 3

Which one of the following situations does not describe the work done on an object?

- A. Lifting a bar above the head
- B. Pushing a supermarket trolley across a car park
- C. Walking up stairs
- D. Holding a box at a height of 1.5 m above the floor

[1 mark]

### Question 4

What is the equation for kinetic energy?

A.  $E_k = mgh$

B.  $E_k = \frac{1}{2} kx^2$

C.  $E_k = \frac{1}{2} mv^2$

D.  $E_k = Fs$

[1 mark]

### Question 5

Which of the following statements about gravitational potential energy is correct?

A. If a mass falls it will lose gravitational potential energy

B. If a mass is lifted up it will lose gravitational potential energy

C. If a mass falls it gains gravitational potential energy

D. If a mass travels horizontally then gravitational potential energy is lost

[1 mark]

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### Question 6

Which of the following is the correct definition for elastic potential energy?

A. Elastic potential energy is a measure of how much a material can be stretched or compressed

B. Elastic potential energy is the maximum amount that can be stretched or compressed

C. Elastic potential energy is a measure of the stiffness of a material

D. Elastic potential energy is the energy stored within a material (e.g. in a spring) when it is stretched or compressed

[1 mark]

### Question 7

What are the correct units for power?

- A. Joules
- B. Watts
- C. Newton meters
- D. Newtons

[1 mark]

### Question 8

Which row describes an energy transfer?

- A. Elastically
- B. Chemically
- C. Gravitational Potentially
- D. Electrically

[1 mark]



### Question 9

What is another way of saying that energy is wasted?

- A. Energy has been transferred
- B. Energy has been dissipated
- C. Energy has been conserved
- D. Energy has been destroyed

[1 mark]



### Question 10

Which is the correct equation for the efficiency of a system?

A. Efficiency =  $\frac{\text{useful energy in}}{\text{total energy out}} \times 100$

B. Efficiency =  $\frac{\text{wasted energy out}}{\text{total energy out}} \times 100$

C. Efficiency =  $\frac{\text{useful energy out}}{\text{total energy in}} \times 100$

D. Efficiency =  $\frac{\text{energy transferred}}{\text{time}} \times 100$

[1 mark]

