Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 8_Energy Forces Doing Work

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

* A class of students investigate the power output of each student in the class.

The class must decide whether they use a method using steps or a method using weights.
The whole class must use the same method.

Plan what measurements the students should take and how these can be used to calculate and compare the power output of each student.

You may draw a diagram to help with your plan.

(6)

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(Total for question = 6 marks)

Q2.

Three students carry out an investigation to determine their powers when running up stairs.

They take turns to run up the stairs and use a stopwatch to measure the time taken.

The students estimate their own weight.

Figure 8 shows a table of their results.

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The table is not complete.

student	student estimate of weight in N	distance in m	work done	time taken in s	power in W
A	550	4.0	2200	5.0	440
B		4.0	1960	4.5	436
C	510	4.0	2040		425

Figure 8

(i) State the unit for work done.

(1)

unit for work done is .....

(ii) Use the data for student B to calculate his estimated weight.

(2)

weight = ... N

(iii) Use the data for student C to calculate the time she takes.

(2)

time taken = ... s

(iv) Use the data for all three students to calculate the average power of the students.

(2)

average power = ... W

(Total for question = 7 marks)

Q3.

A cyclist starts to cycle.

The cyclist does 1600 J of useful work to travel 28 m.

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Calculate the average force the cyclist exerts.

(3)

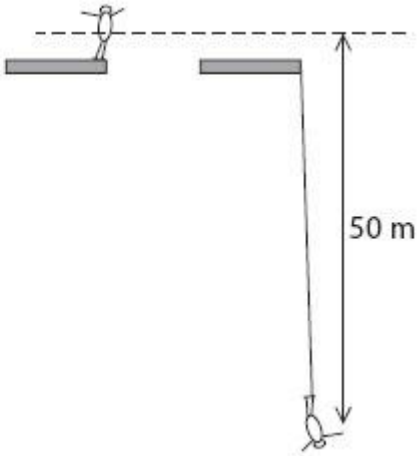
average force = ... N

(Total for question = 3 marks)

Q4.

A 60 kg student weighs 600 N.
He does a bungee jump.





The bungee cord becomes straight and starts to stretch when he has fallen 50 m.
Complete the sentence by putting a cross (☒) in the box next to your answer.

He first stops moving

(1)

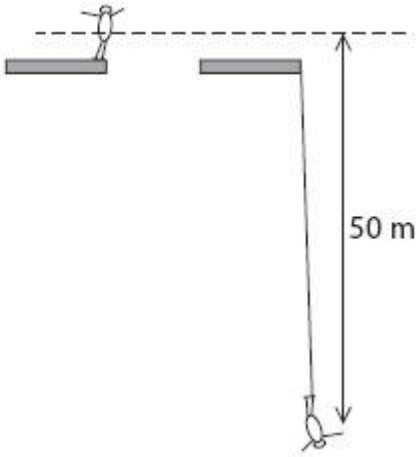
- ☒ **A** before all the energy has disappeared
- ☒ **B** before the bungee cord starts to stretch
- ☒ **C** when the bungee cord is stretched the most
- ☒ **D** when the elastic potential energy is zero

Q5.

A 60 kg student weighs 600 N.
He does a bungee jump.

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The bungee cord becomes straight and starts to stretch when he has fallen 50 m.

(a) Complete the sentence by putting a cross (■) in the box next to your answer.

He first stops moving

(1)

- ☒ **A** before all the energy has disappeared
- ☒ **B** before the bungee cord starts to stretch
- ☒ **C** when the bungee cord is stretched the most
- ☒ **D** when the elastic potential energy is zero

(b) Complete the sentence by putting a cross (■) in the box next to your answer.

When his speed is 10 m/s his momentum is

(1)

- ☒ **A** 600 kg m/s
- ☒ **B** 3 000 kg m/s
- ☒ **C** 6 000 N m/s
- ☒ **D** 30 000 N m/s

(c) (i) Calculate the change in gravitational potential energy as the student falls 50 m.
Give the unit.

(3)

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(ii) State at what point in the bungee jump the student has maximum kinetic energy.

(1)

.....

.....

(iii) Explain why his maximum kinetic energy is likely to be less than your answer to (c)(i).

(2)

.....

.....

.....

(Total for Question = 8 marks)

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