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

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Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

Answer the question with a cross in the box you think is correct ☒ . If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒ .

Two cyclists ride on a hilly road and go through points P, Q, R and S.

The diagram in Figure 16 shows how the vertical height of the road changes during the journey from P to S.

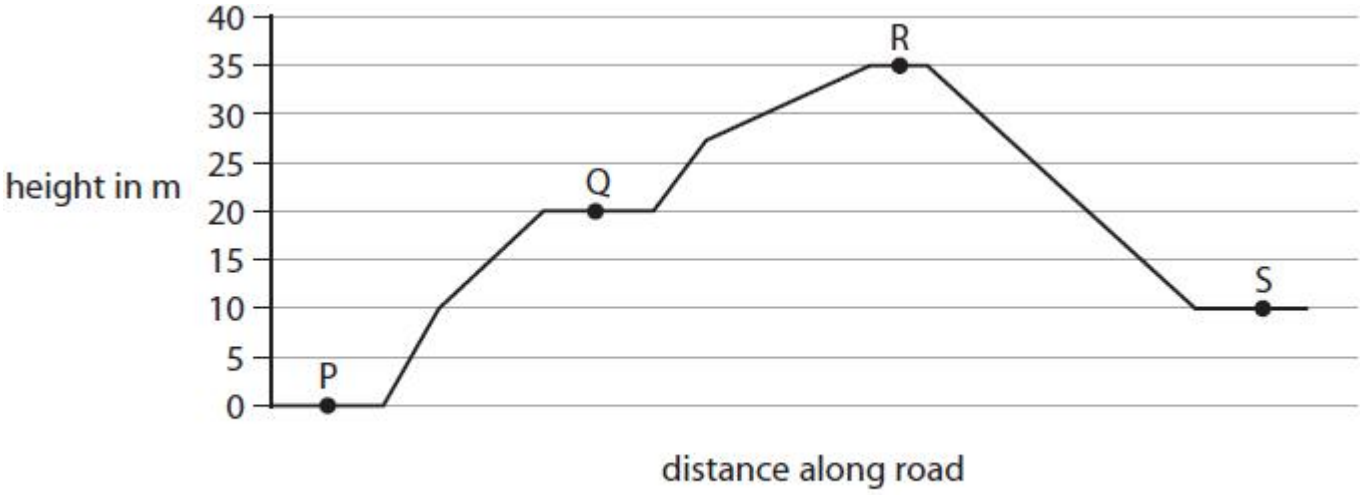


Figure 16

(i) The greatest overall change in gravitational potential energy for each cyclist is between which two points on the journey?

(1)

- ☐ **A** P and Q
- ☐ **B** Q and R
- ☐ **C** P and S
- ☐ **D** R and S

(ii) The total weight of one cyclist and bicycle is 700 N.

Calculate the total amount of work done against gravity when the cyclist travels from point P to point Q in the journey.

(2)

work done = ... J

(iii) The gravitational potential energy of the other cyclist changes by 11 250 J when travelling from point Q to

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point R.

Calculate the mass of this cyclist.
Gravitational field strength = 10 N / kg
Use the equation

$$\Delta GPE = m \times g \times \Delta h$$

(2)

mass = ... kg

(iv) Explain why the total amount of work done by a cyclist between points Q and R is different from the change in gravitational potential energy of the cyclist between points Q and R.

(2)

.....

.....

.....

.....

(v) The cyclists lubricated the chains and the wheel bearings of their bicycles before setting off.

Lubricating the chains and wheel bearings helps to

(1)

- ☒ **A** decrease the amount of work done against gravity
- ☒ **B** decrease the efficiency of the cyclist and bicycle
- ☒ **C** increase the efficiency of the cyclist and bicycle
- ☒ **D** increase the overall amount of energy transferred by the cyclist

(Total for question = 8 marks)

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Q2.

Answer the questions with a cross in the boxes you think are correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Two cyclists ride on a hilly road and go through points P, Q, R and S.

The diagram in Figure 7 shows how the vertical height of the road changes during the journey from P to S.

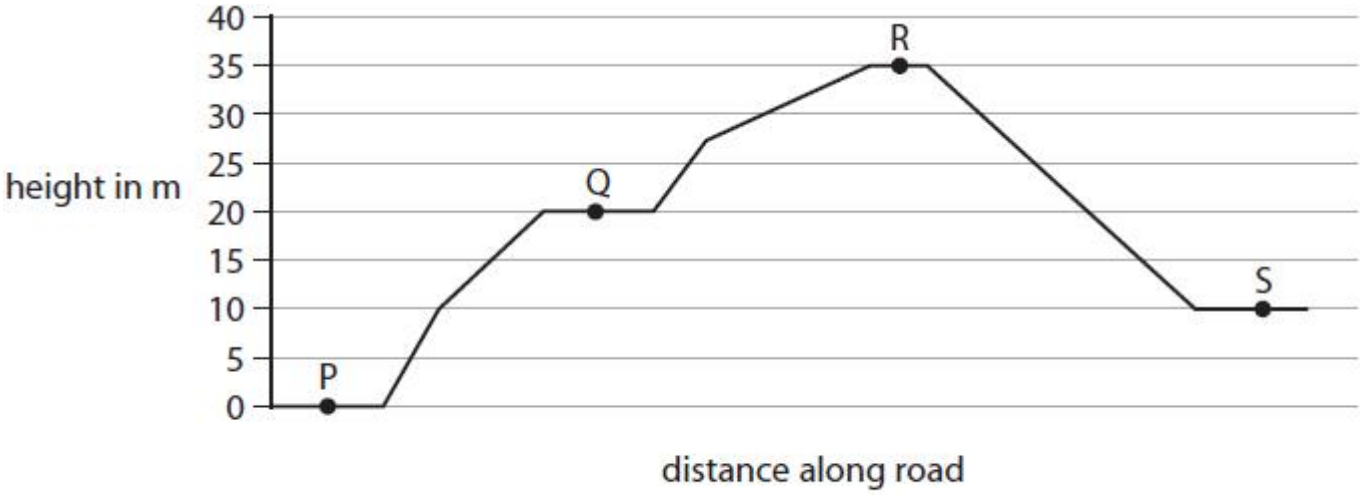


Figure 7

(i) The greatest overall change in gravitational potential energy for each cyclist is between which two points on the journey?

(1)

- ☒ **A** P and Q
- ☒ **B** Q and R
- ☒ **C** P and S
- ☒ **D** R and S

(ii) The total weight of one cyclist and bicycle is 700 N.

Calculate the total amount of work done against gravity when the cyclist travels from point P to point Q in the journey.

(2)

work done = ... J

(iii) The gravitational potential energy of the other cyclist changes by 11 250 J when travelling from point Q to point R.

Calculate the mass of this cyclist.
Gravitational field strength = 10 N / kg
Use the equation

$$\Delta GPE = m \times g \times \Delta h$$

(2)

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mass = ... kg

(iv) Explain why the total amount of work done by a cyclist between points Q and R is different from the change in gravitational potential energy of the cyclist between points Q and R.

(2)

.....

.....

.....

.....

(v) The cyclists lubricated the chains and the wheel bearings of their bicycles before setting off.

Lubricating the chains and wheel bearings helps to

(1)

- ☒ **A** decrease the amount of work done against gravity
- ☒ **B** decrease the efficiency of the cyclist and bicycle
- ☒ **C** increase the efficiency of the cyclist and bicycle
- ☒ **D** increase the overall amount of energy transferred by the cyclist

(Total for question = 8 marks)

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Q3.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Which of these is the equation for work done?

(1)

- ☐ **A** work done = force ÷ distance moved in direction of force
- ☐ **B** work done = force × distance moved in direction of force
- ☐ **C** work done = force ÷ distance moved at right angles to direction of force
- ☐ **D** work done = force × distance moved at right angles to direction of force

(Total for question = 1 mark)

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