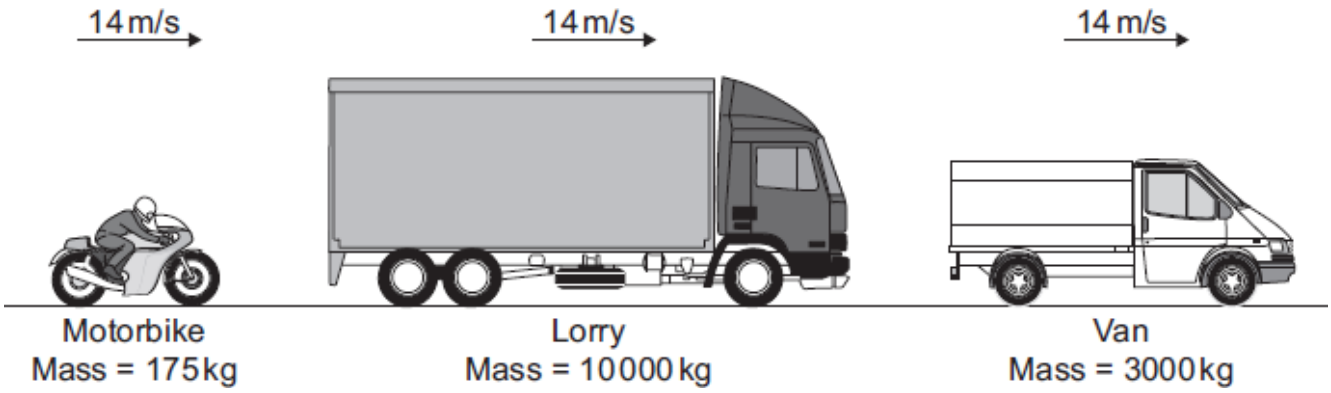
Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: Forces (Standard Demand Questions)

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

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

Q1.

(a) (i) The diagram shows three vehicles travelling along a straight road at 14 m/s.



Which vehicle has the greatest momentum?

_____

Give the reason for your answer.

_____

_____

_____

(2)

(ii) Use the equation in the box to calculate the momentum of the motorbike when it travels at 14 m/s.

momentum = mass × velocity

Show clearly how you work out your answer.

_____

_____

Momentum = _____ kg m/s

(2)

(b) The motorbike follows the lorry for a short time, and then accelerates to overtake both the lorry and van.

(i) Complete the following sentence by drawing a ring around the correct line in the box.

When the motorbike starts to overtake, the kinetic energy

of the motorbike

decreases.
stays the same.
increases.

(1)

(ii) Give a reason for your answer to part (b)(i).

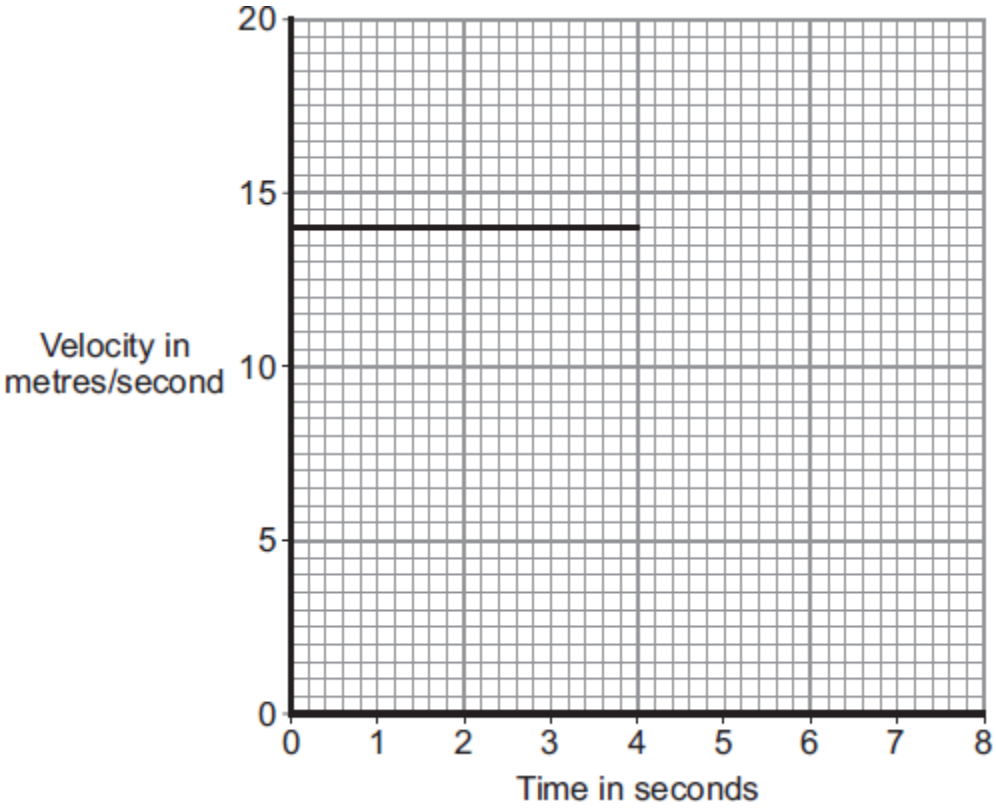
_____

_____

(1)

(iii) The graph shows the velocity of the motorbike up to the time when it starts to accelerate. The motorbike accelerates constantly, going from a speed of 14 m/s to a speed of 20 m/s in a time of 2 seconds. The motorbike then stays at 20 m/s.

Complete the graph to show the motion of the motorbike over the next 4 seconds.



(3)

(Total 9 marks)

Q2.

A cyclist travelling along a straight level road accelerates at 1.2 m/s^2 for 5 seconds.
The mass of the cyclist and the bicycle is 80 kg.

(a) Calculate the resultant force needed to produce this acceleration.

Show clearly how you work out your answer and give the unit.

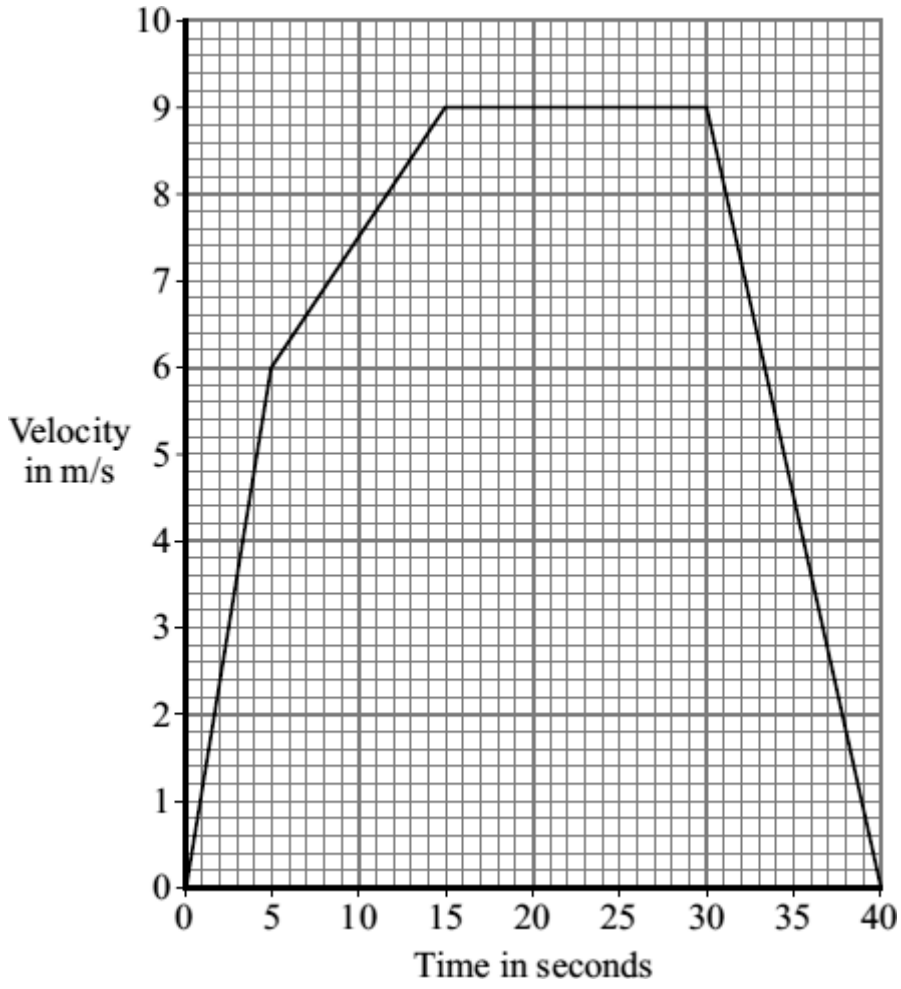
_____

_____

Resultant force = _____

(3)

(b) The graph shows how the velocity of the cyclist changes with time.



(i) Complete the following sentence.

The velocity includes both the speed and the _____ of the cyclist.

(1)

(ii) Why has the data for the cyclist been shown as a line graph instead of a bar chart?

_____

_____

(1)

(iii) The diagrams show the horizontal forces acting on the cyclist at three different speeds. The length of an arrow represents the size of the force.

A **B** **C**

Which **one** of the diagrams, **A**, **B** or **C**, represents the forces acting when the cyclist is travelling at a constant 9 m/s?

_____

Explain the reason for your choice.

_____

_____

_____

_____

_____

_____

(3)

(Total 8 marks)