Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic: GCSE Triple Science_Forces (High Demand Questions)

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Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Q1.

(a) The stopping distance of a vehicle is made up of two parts, the thinking distance and the braking distance.

(i) What is meant by *thinking distance*?

_____

_____

(1)

(ii) State **two** factors that affect thinking distance.

1. _____

_____

2. _____

_____

(2)

(b) A car is travelling at a speed of 20 m/s when the driver applies the brakes. The car decelerates at a constant rate and stops.

(i) The mass of the car and driver is 1600 kg.

Calculate the kinetic energy of the car and driver before the brakes are applied.

_____

_____

_____

Kinetic energy = _____ J

(2)

(ii) How much work is done by the braking force to stop the car and driver?

Work done = _____ J

(1)

(iii) The braking force used to stop the car and driver was 8000 N.

Calculate the braking distance of the car.

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_____

_____

_____

_____

Braking distance = _____ m

(2)

(iv) The braking distance of a car depends on the speed of the car and the braking force applied.

State **one** other factor that affects braking distance.

_____

_____

(1)

(v) Applying the brakes of the car causes the temperature of the brakes to increase.

Explain why.

_____

_____

_____

_____

(2)

(c) Hybrid cars have an electric engine and a petrol engine. This type of car is often fitted with a regenerative braking system. A regenerative braking system not only slows a car down but at the same time causes a generator to charge the car's battery.

State and explain the benefit of a hybrid car being fitted with a regenerative braking system.

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(3)

(Total 14 marks)

Q2.

The diagram shows a man standing in an airport queue with his wheeled bag.

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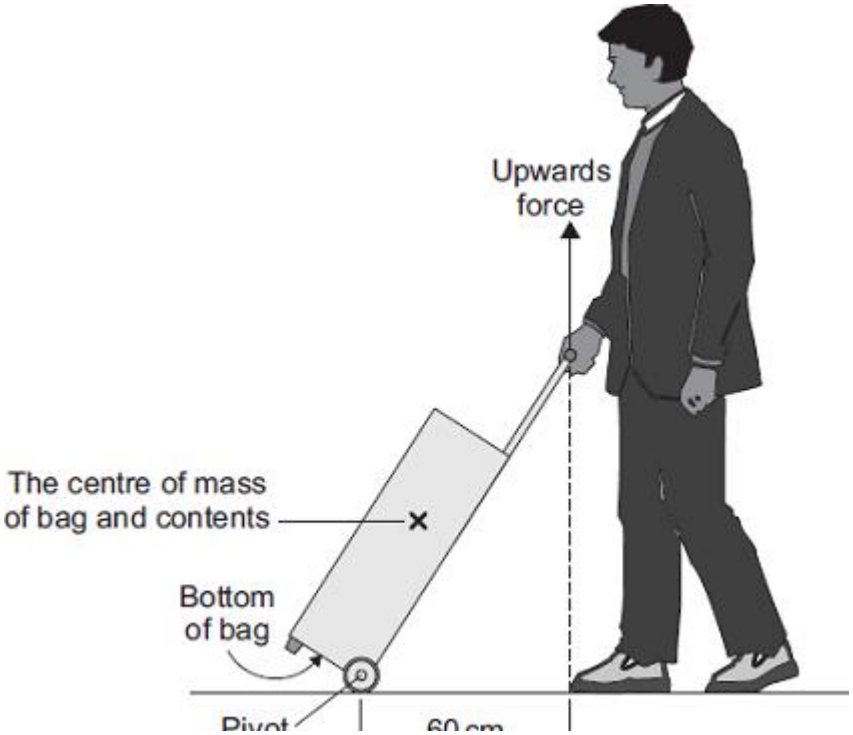

(a) The man applies an upward force to the handle of his bag to stop the bag from falling. The moment of this force about the pivot is 36 Nm.

Calculate the upward force the man applies to the handle of his bag.

_____

_____

_____

_____

Force = _____ N

(2)

(b) When the man lets go of the bag handle, the bag falls and hits the floor.

Explain why.

_____

_____

_____

_____

_____

_____

(2)

(Total 4 marks)

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