

Name of the Student: \_\_\_\_\_

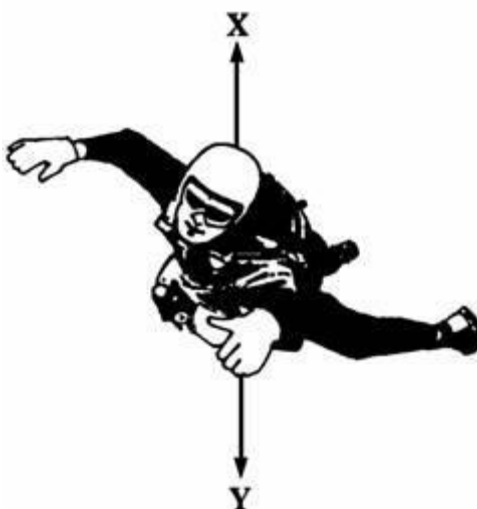
Max. Marks : 17 Marks

Time : 17 Minutes

**Q1.**

A sky-diver jumps from a plane.

The sky-diver is shown in the diagram below.



(a) Arrows **X** and **Y** show two forces acting on the sky-diver as he falls.

(i) Name the forces **X** and **Y**.

**X** \_\_\_\_\_

**Y** \_\_\_\_\_

(2)

(ii) Explain why force **X** acts in an upward direction.

\_\_\_\_\_  
\_\_\_\_\_

(1)

(iii) At first forces **X** and **Y** are unbalanced.

Which of the forces will be bigger? \_\_\_\_\_

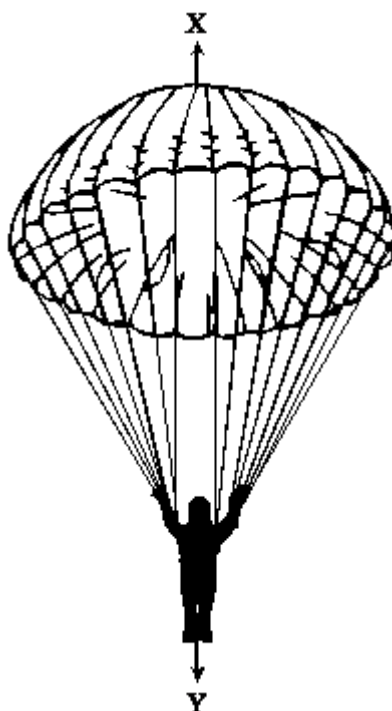
(1)

(iv) How does this unbalanced force affect the sky-diver?

\_\_\_\_\_

- (b) After some time the sky-diver pulls the rip cord and the parachute opens.

The sky-diver and parachute are shown in the diagram below.



After a while forces **X** and **Y** are balanced.

Underline the correct answer in each line below.

Force **X** has

*increased / stayed the same / decreased.*

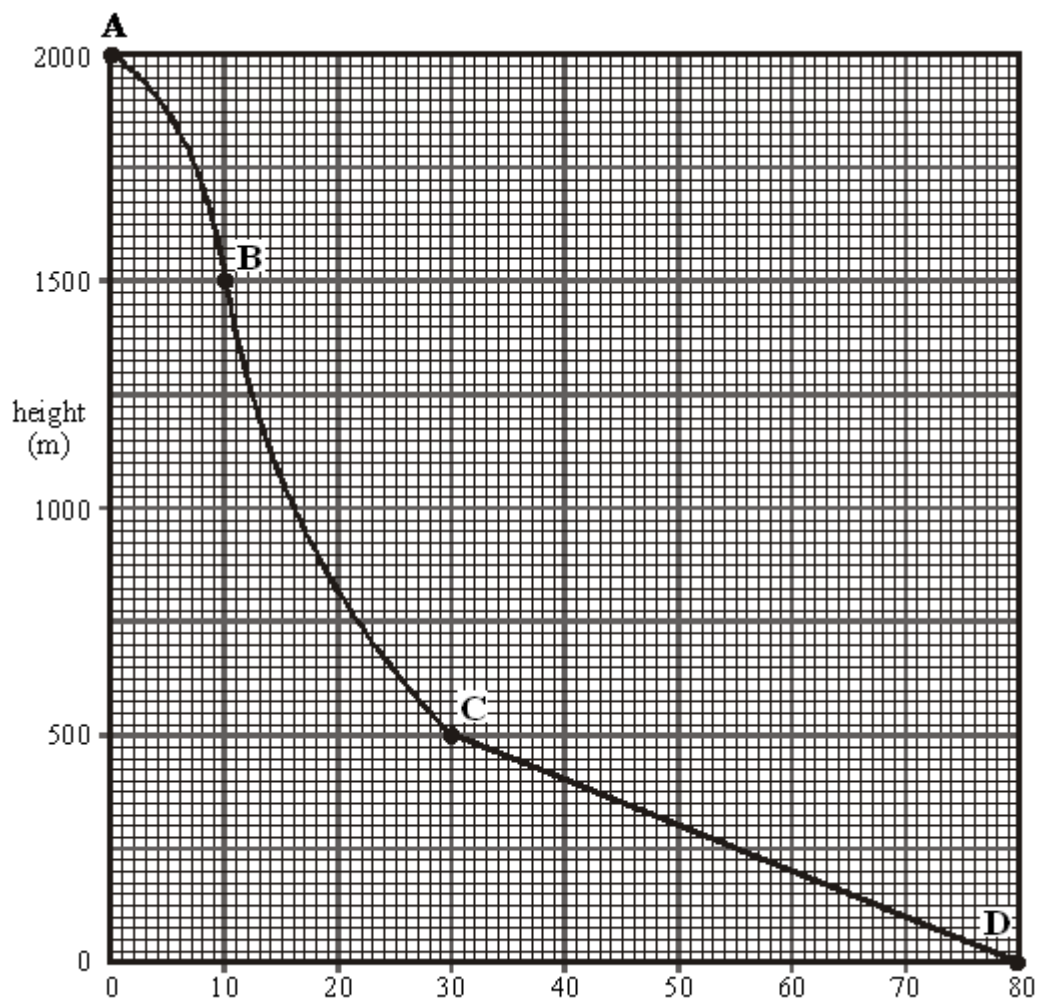
Force **Y** has

*increased / stayed the same / decreased.*

The speed of the sky-diver will

*increase / stay the same / decrease.*

- (c) The graph below shows how the height of the sky-diver changes with time.



- (i) Which part of the graph, **AB**, **BC** or **CD** shows the sky-diver falling at a constant speed?

\_\_\_\_\_ (1)

- (ii) What distance does the sky-diver fall at a constant speed?

Distance \_\_\_\_\_ m (1)

- (iii) How long does he fall at this speed?

Time \_\_\_\_\_ s (1)

- (iv) Calculate this speed.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

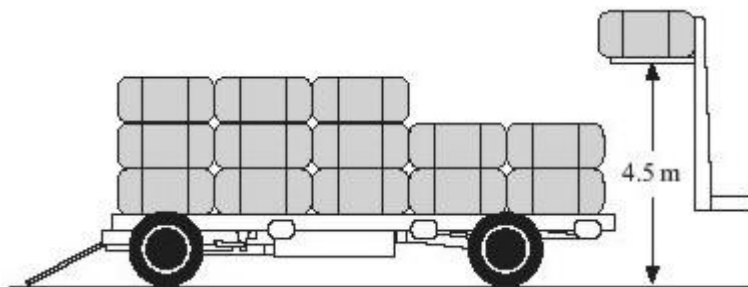
Speed \_\_\_\_\_ m/s (2)

(Total 14 marks)

**Q2.**

A forklift truck was used to stack boxes on to a trailer.

It lifted a box weighing 1900 N through 4.5 m.



Calculate the work done on the box. Show your working.

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Work done = \_\_\_\_\_ J  
(Total 3 marks)