Moments

Question Paper

Course	CIE IGCSE Physics
Section	1. Motion, Forces & Energy
Topic	Moments
Difficulty	Medium

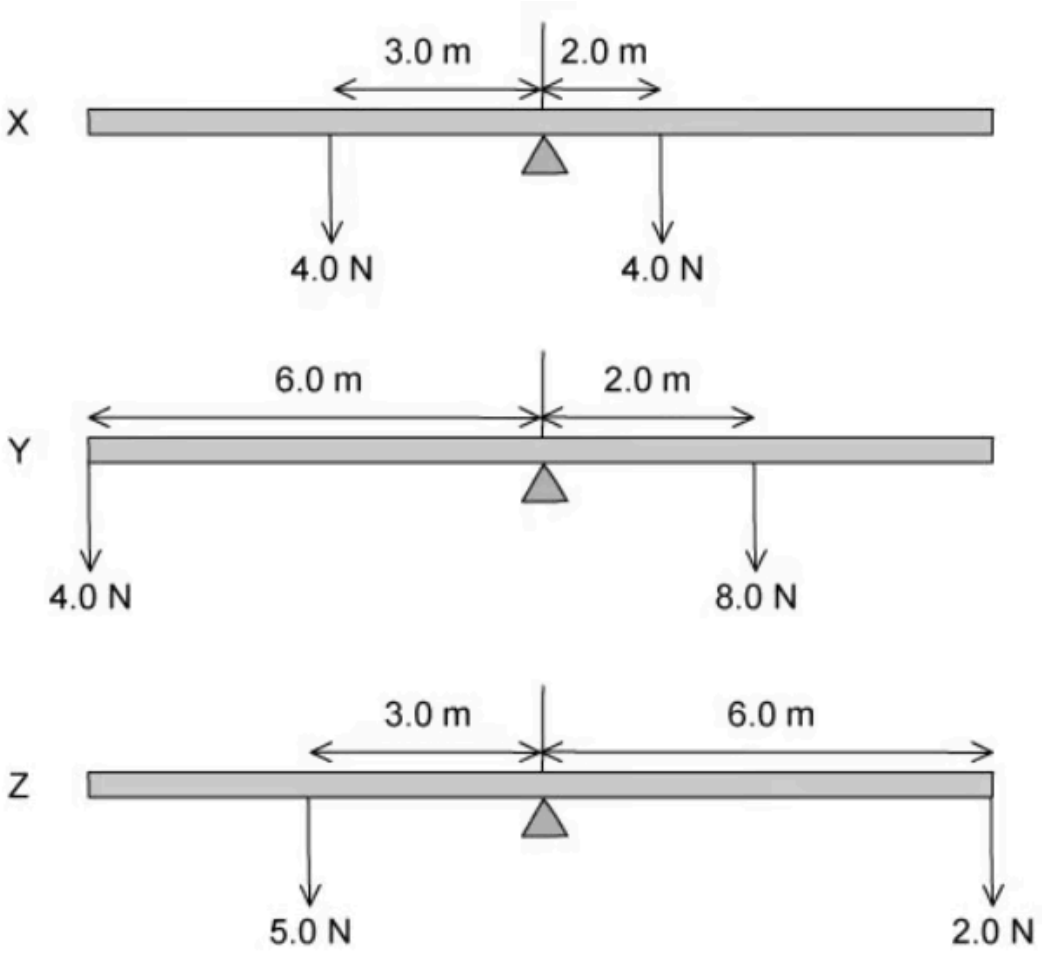
Time Allowed 10

Score /8

Percentage /100

Question 1

The diagrams below show three beams, each is pivoted at the centre. Each beam also has two forces acting on it, as shown.



Which of the beams will rotate clockwise?

A. X and Y

B. Y and Z

C. Z only

D. None of them

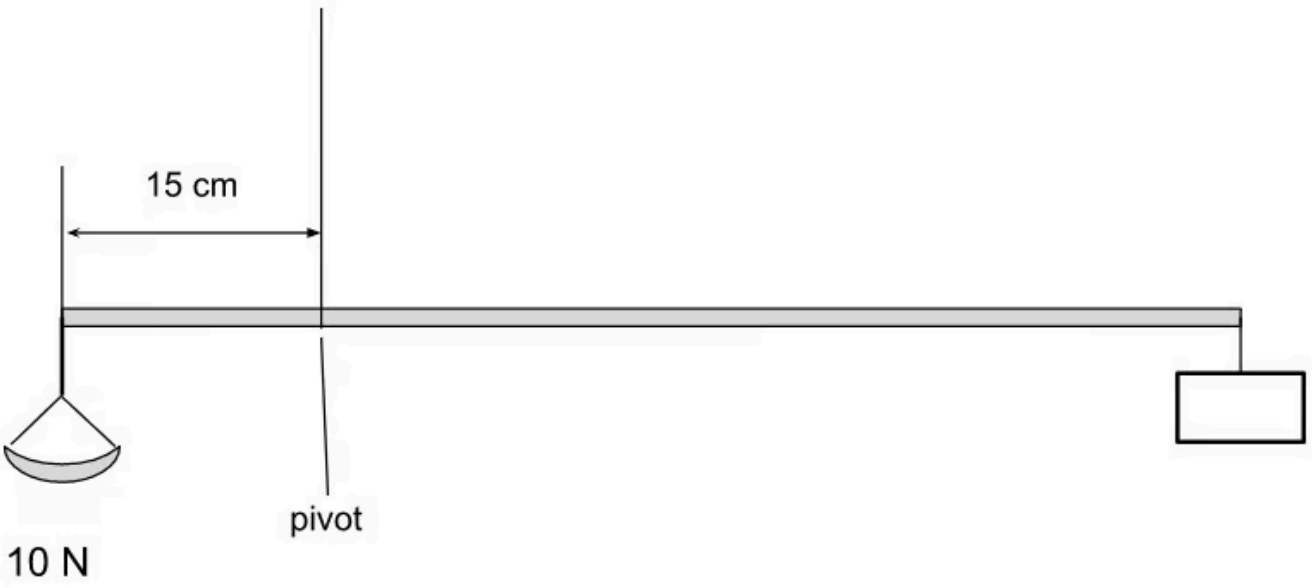
[1 mark]

Question 2

A 'yardarm' is a stick, hung from a string, that is used to weigh goods. Goods are placed in the pan on the left, and weights are added to the box on the right side until it balances.

The weight of the pan and the box are such that the weight of the yardarm itself is entirely balanced by the pan.

The yardarm is 65 cm long.



How many 0.5 N weights need to be added to the box in order to balance the yardarm?

A. 2

B. 3

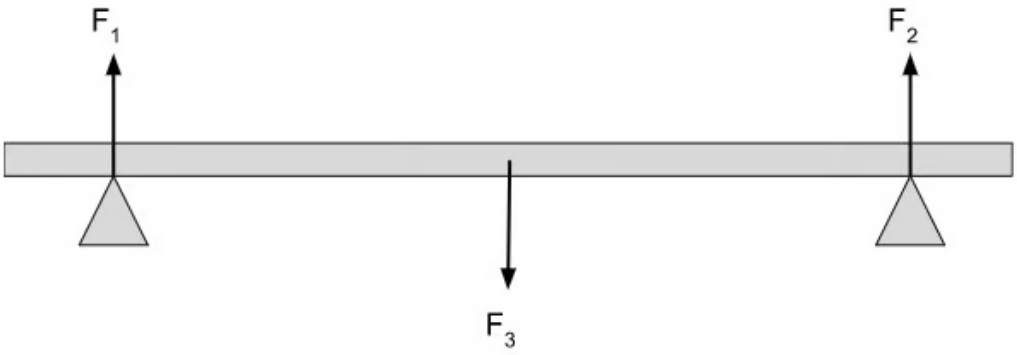
C. 6

D. 12

[1 mark]

Question 3

A plank rests on two supports, as shown in the diagram. The plank is in equilibrium. Three forces act on the plank.



Which statement is true?

A. The upward force is larger than the downward force.

B. The resultant force on the beam is zero and the resultant moment on the beam is zero.

C. The resultant moment on the beam is zero, but the resultant force is not zero.

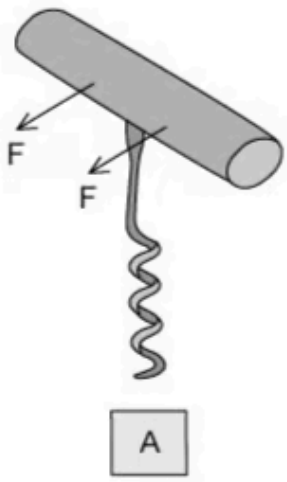
D. All three forces are equal in size.

[1 mark]

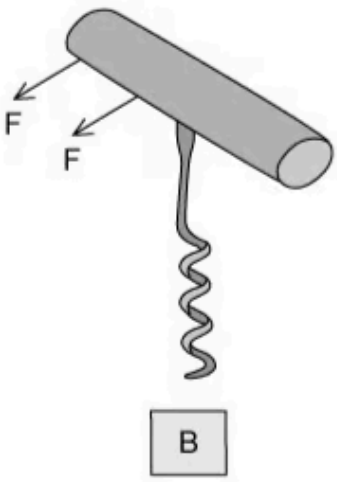
Question 4

A corkscrew is used to open a bottle of wine.

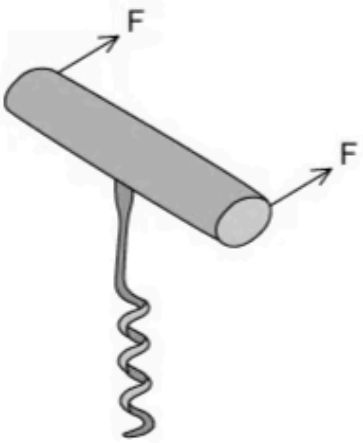
Two forces are applied at each of the positions shown below.



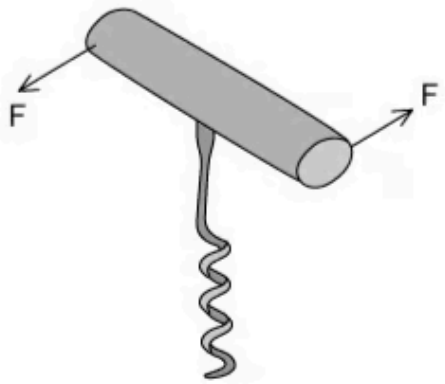
A



B



C



D

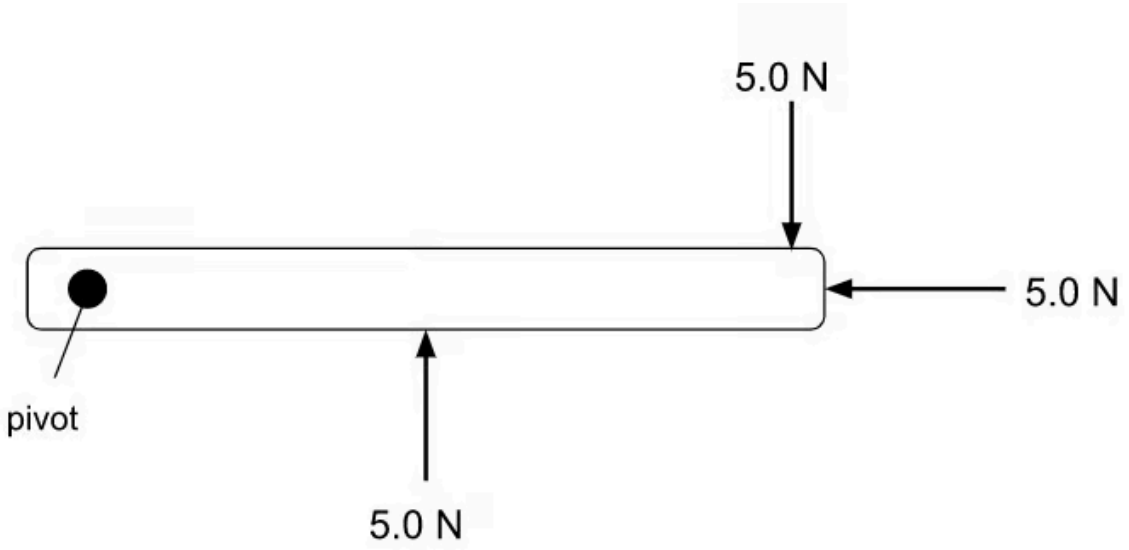
Which pair of forces produces the greatest turning force?

[1 mark]

Question 5

Extended tier only

The diagram shows a door handle with three forces acting on it.



How will the door handle move?

A. It will turn clockwise.

B. It will turn anticlockwise.

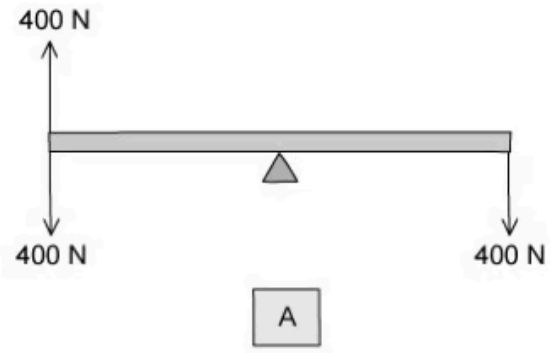
C. It will move to the left.

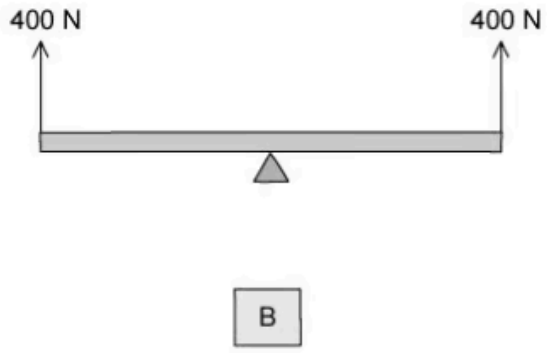
D. It will not move at all.

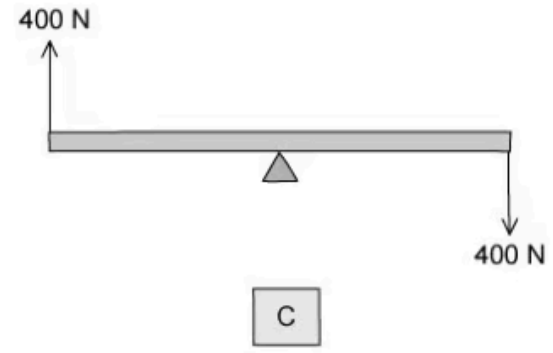
[1 mark]

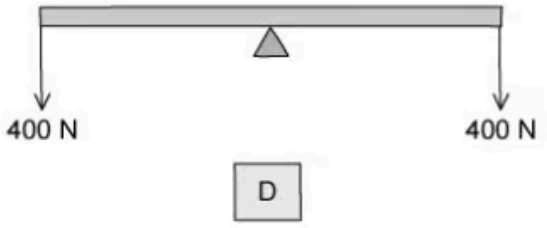
Question 6

The diagrams each show a beam resting on a pivot and being acted on by some forces. The beam is not attached to the pivot. The pivot is in the centre of the rod in each case.







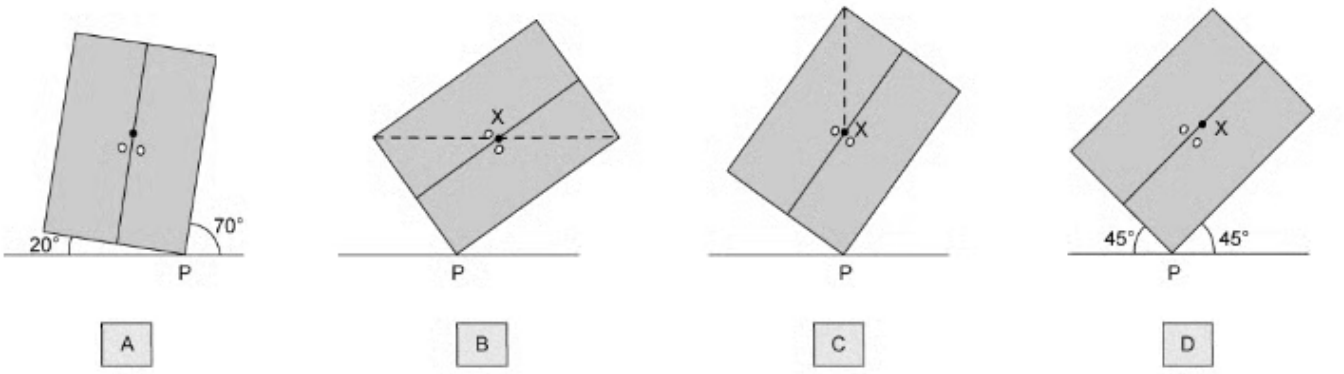


Which of the beams is in equilibrium?

[1 mark]

Question 7

A wardrobe is shown tilted at a variety of angles.



In which position is the wardrobe in equilibrium?

[1 mark]

Question 8

Why are passengers not allowed to stand up on the top deck of a double decker bus?

A. They cannot be trusted to stand where the driver can't see them.

B. They would raise the pressure exerted by the bus on the road.

C. They would increase the gravitational potential energy of the bus.

D. They would raise the centre of mass of the bus, causing it to become less stable

[1 mark]