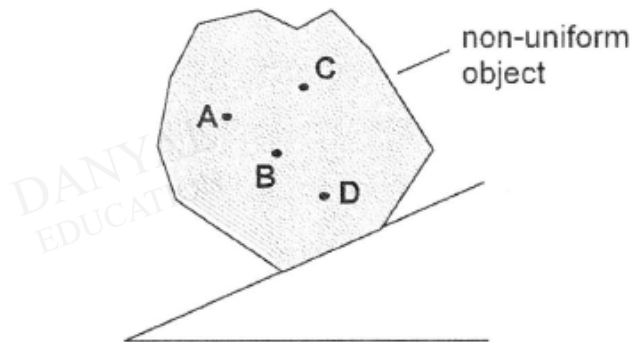


**O Level Pure Physics MCQs**

**Moments Test 1.0**

Q1

A non-uniform object is placed on an inclined plane as shown below. If the object is just about to topple, which position will be its centre of gravity?



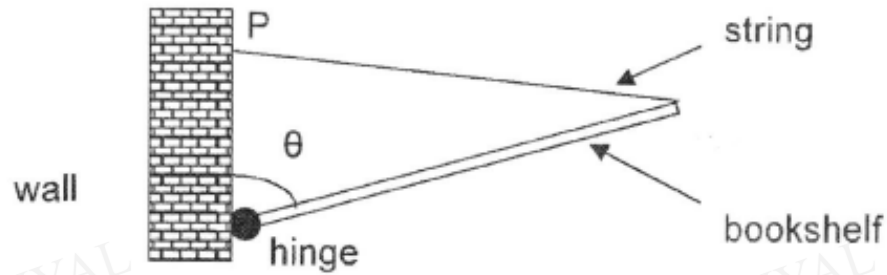
Q2

Forces are applied to a uniform beam pivoted at its centre. Which beam is balanced?

A	
B	
C	
D	

Q3

A string is tied to the wall at a fixed point P to help to secure a bookshelf.



Which of the following will help to minimise the tension in the string in order to help it last longer?

- A a smaller  $\theta$
- B have a longer bookshelf
- C less friction at hinge
- D use steel bookshelf instead of light wooden one

Q4

Three identical hollow pipes X, Y and Z have one or two identical weights attached to their inner surfaces as shown in Fig. 9.1.

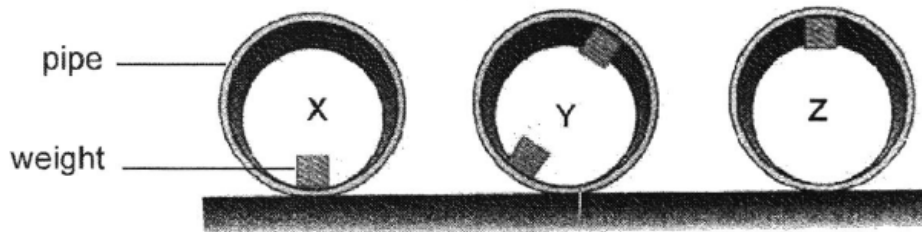


Fig. 9.1

Which of the following sets best describes the state of equilibrium of each pipe?

	X	Y	Z
A	neutral	unstable	stable
B	unstable	neutral	stable
C	neutral	stable	unstable
D	stable	neutral	unstable

Q5

Fig. 10.1 shows four identical heavy bells balancing on light strings and horizontal bars of negligible mass.

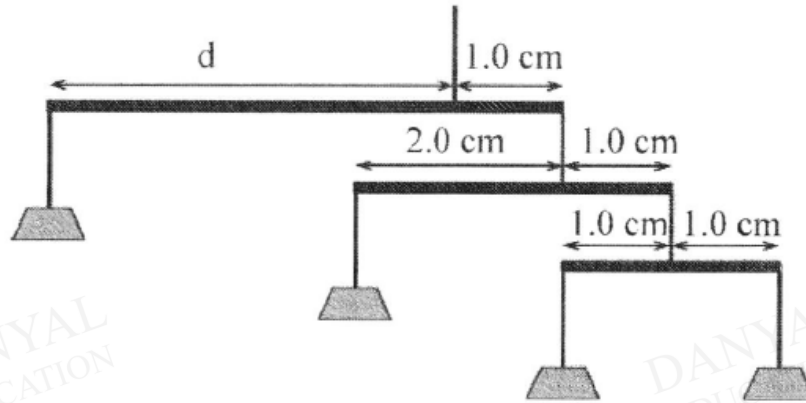


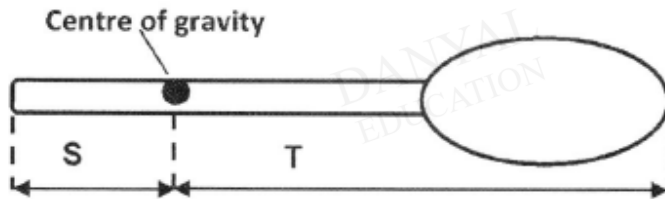
Fig. 10.1

What is the length  $d$ ?

- A 3.0 cm                      B 4.0 cm                      C 5.0 cm                      D 6.0 cm

Q6

The diagram below shows the position of the centre of gravity of an object made of different material.

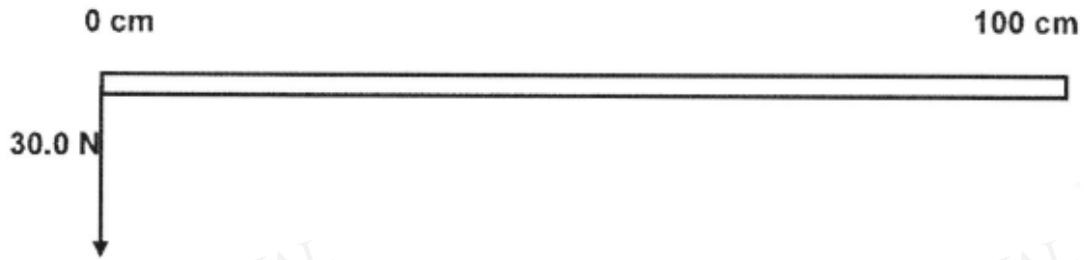


Which of the following statements about the object is **not correct**?

- A The weight of the object acts through the centre of gravity.  
B The spoon can be balanced by placing a knife edge at the centre of gravity.  
C The mass of part S of the spoon is more than that of part T.  
D The mass part S of the spoon is equal to that of part T.

Q7

The diagram below shows a uniform metre ruler with a weight of 10 N, under the action of a vertical force of 30.0 N.

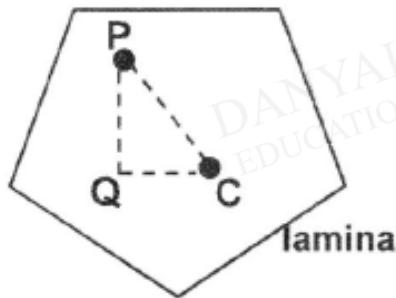


At what mark must a fulcrum be placed to hold the ruler in equilibrium?

- A 12.5 cm
- B 16.7 cm
- C 25.0 cm
- D 37.5 cm

Q8

A flat lamina is freely suspended from point P.  
The weight of the lamina is 4.0 N and the centre of mass is at Q.



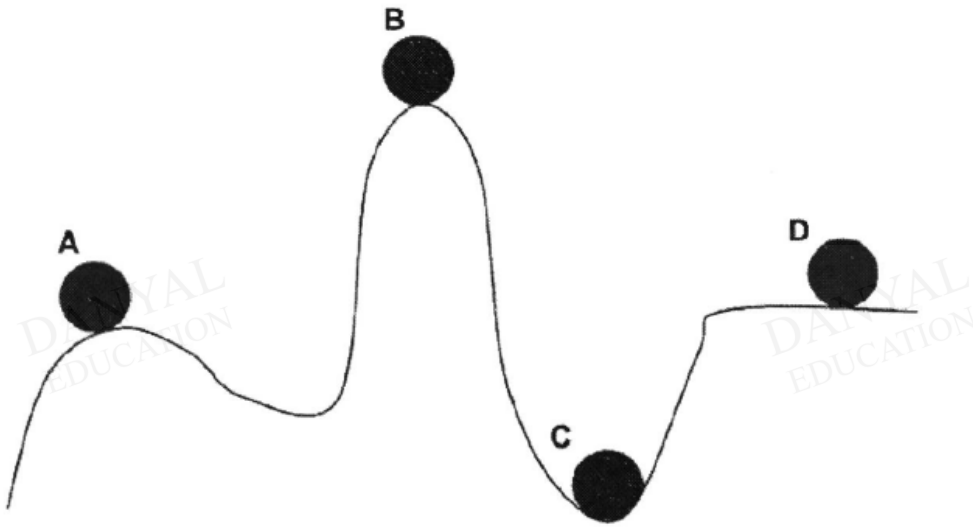
- PC = 0.50 m
- PQ = 0.40 m
- QC = 0.30 m

What is the moment due to the weight of lamina that will cause the lamina to swing?

- A 0 N m
- B 1.2 N m
- C 1.6 N m
- D 2.0 N m

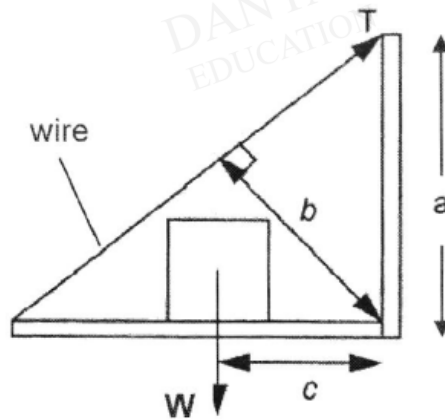
Q9

The diagram below shows four balls. Which of them is in a state of neutral equilibrium?



Q10

The diagram shows a L-shaped book shelf supporting a block of wood with weight  $W$ . What is the value of the tension in the wire,  $T$ ?



- A  $W \times c/a$     B  $W \times a/c$     C  $W \times c/b$     D  $W \times b/a$

**Answers**

**Moments Test 1.0**

Q1 B

Q2 D

Q3 A

Q4 D

Q5 A

Q6 D

Q7 A

Q8 A

Q9 D

Q10 C

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