5.1 Force & the Turning Effect

Question Paper

Course	CIE A Level Physics (9702) 2019-2021
Section	5. Forces, density and pressure
Topic	5.1 Force & the Turning Effect
Difficulty	Easy

Time allowed: **10**

Score: **/10**

Percentage: **/100**

Question 1

Forces of 3N, 4N and 5N act at one point on an object. The angles at which the forces act can vary.

What is the value of the minimum resultant force of these forces?

A Zero

B between 0 and 2 N

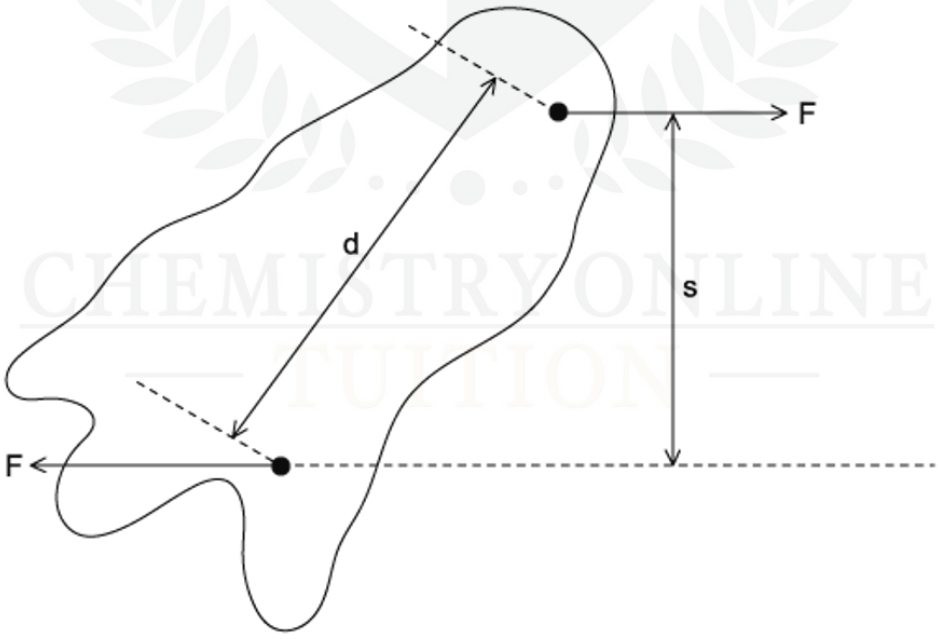
C 2 N

D between 2 N and 4 N

[1 mark]

Question 2

Two parallel forces, each of magnitude *F*, act on a body as shown



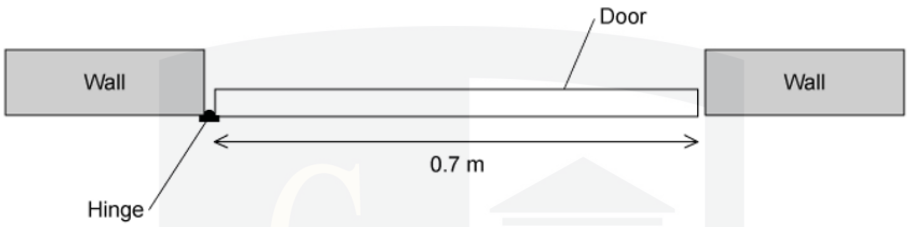
What is the magnitude of the torque on the body produced by this couple?

A *Fd** **B** *Fs** **C** *2Fd** **D** *2Fs*

[1 mark]

Question 3

The diagram shows a plan view of a door which requires a moment of 14 N m to open it.



What is the minimum force that must be applied at the door's midpoint to ensure it opens?

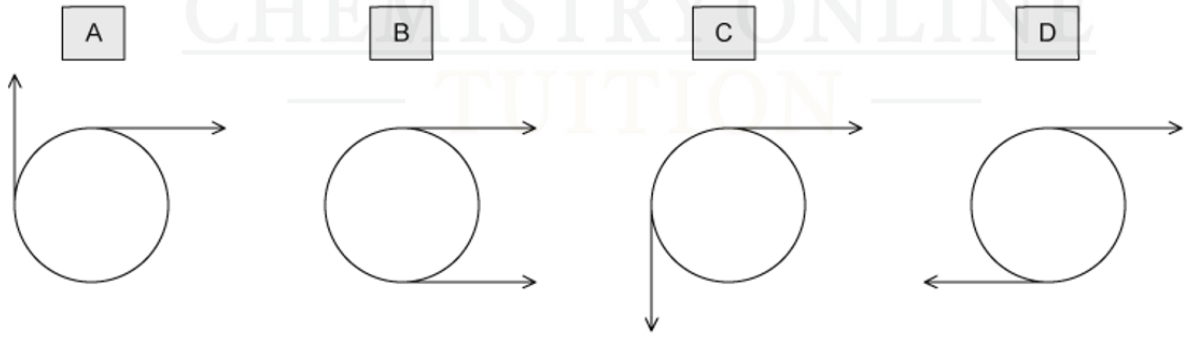
A 4.9 N **B** 9.8 N **C** 20 N **D** 40 N

[1 mark]

Question 4

Two co-planar forces act on the rim of a wheel. The forces are equal in magnitude.

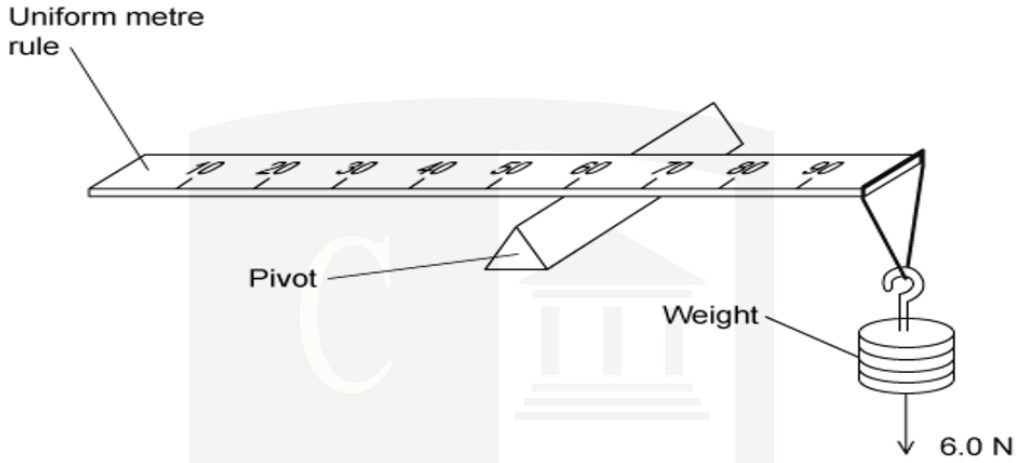
Which arrangement of forces provides only a couple?



[1 mark]

Question 5

A uniform metre rule of weight 4.0 N is pivoted at the 60 cm mark. A 6.0 N weight is suspended from one end, causing the rule to rotate about the pivot.



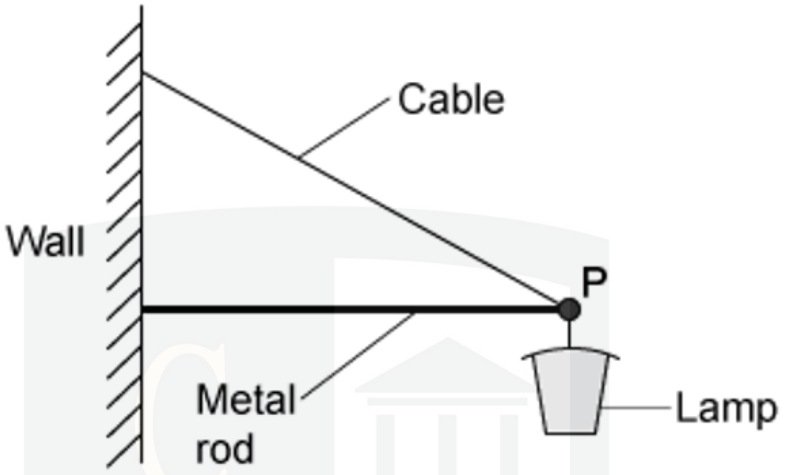
At the instant when the rule is horizontal, what is the resultant turning moment about the pivot?

	resultant moment	Direction
A	2.0 N m	clockwise
B	2.0 N m	anticlockwise
C	2.8 N m	clockwise
D	2.8 N m	anticlockwise

[1 mark]

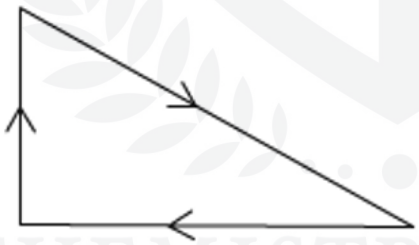
Question 6

A street lamp is fixed to a wall by a metal rod and a cable.

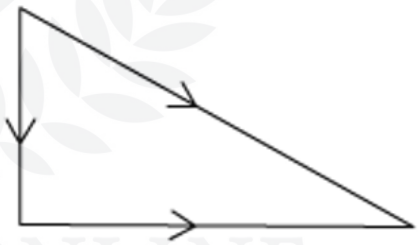


Which vector triangle represents the forces acting at point P?

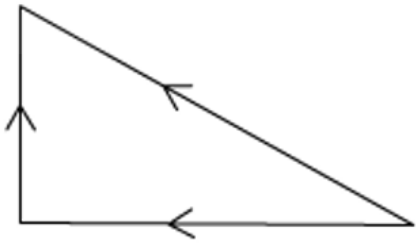
A



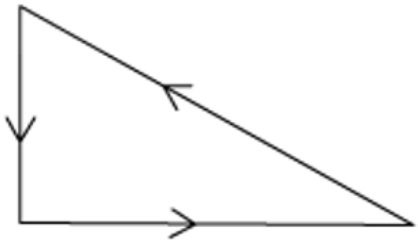
B



C



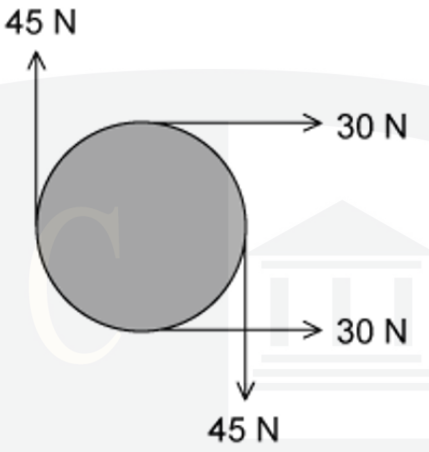
D



[1 mark]

Question 7

The diagram shows four forces applied to a circular object.



Which of the following describes the resultant force and resultant torque on the object?

	resultant force	resultant torque
A	non-zero	non-zero
B	non-zero	zero
C	zero	non-zero
D	zero	zero

[1 mark]

Question 8

A force of 5.0 N pushes a ball due north and another force of 12.0 N pushes it due east.

What is the magnitude of the net force acting on the ball?

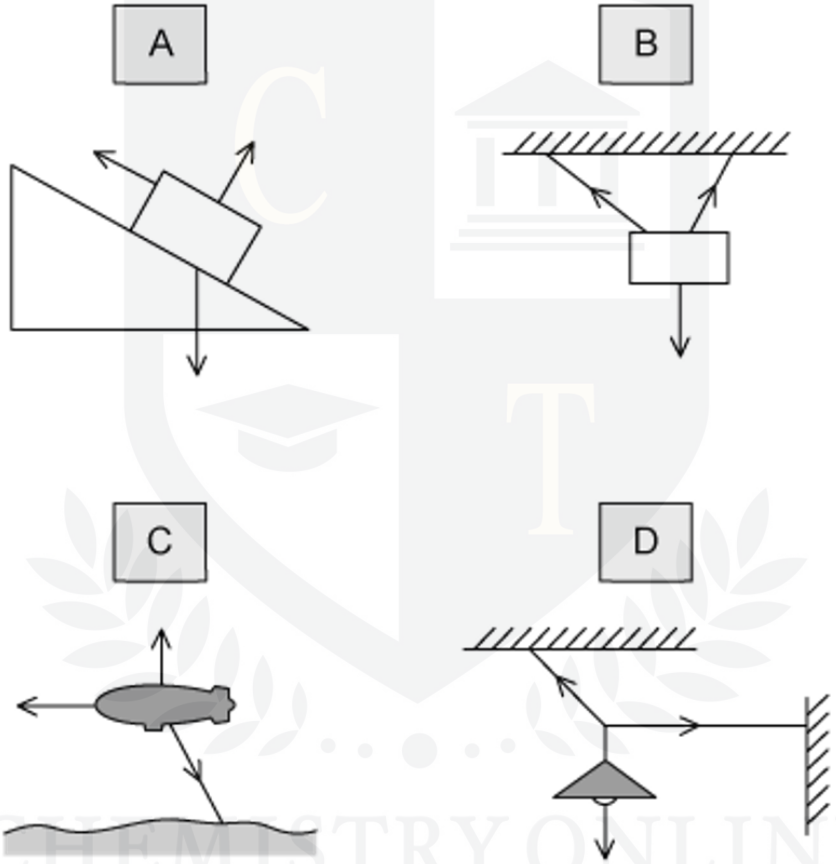
A 7.0 N **B** 10.9 N **C** 13.0 N **D** 17.0 N

[1 mark]

Question 9

The diagrams show the forces acting on different bodies.

Which body **cannot** be in equilibrium?



[1 mark]

Question 10

What is the centre of gravity of an object?

A the geometrical centre of the object

B the point about which the total torque is zero

C the point at which the weight of the object may be considered to act

D the point through which gravity acts

[1 mark]