O Level Combined Physics MCQs

Mass, Weight and Density Test 1.0

Q1

An 80 N rock from the moon which has a gravity of 1.6 m/s², is brought to the Earth. What is the weight of the rock on the Earth? Take g = 10 m/s² on Earth.
(A)   50 N   (C)   500 N
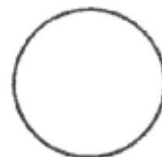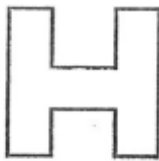(B)   80 N   (D)   800 N

Q2

What are the apparatuses needed to determine the density of a regularly-shaped block?
(A)   a balance and a ruler
(B)   a balance and a weighing scale
(C)   a measuring cylinder and a ruler
(D)   a measuring cylinder and a beaker

Q3

The following three objects are cut from the same sheet of aluminium.

Which statement is correct?

A   All objects have the same density.

B   The circular-shaped object has the greatest density.

C   The H-shaped object has the greatest density.

D   The square-shaped object has the greatest density.

Q4

A 100 g rock is weighed on Earth and Mars. The gravitational field strength of Mars is 2.6 times that of Earth's. Which of the following shows the mass and weight of the rock on Mars?

	mass on Mars	weight of Mars
A	100 g	100 g
B	100 g	0.26 N
C	100 g	2.6 N
D	260 N	260 N

Q5

The acceleration of free fall is 1.6 m/s^2 on the Moon and 10 m/s^2 on Earth. A rock of weight 2 N is brought back from the Moon to Earth.

What is the weight of the rock on Earth?

A 1.25   B 2   C 10   D 12.5

Q6

A box weighs 500 N on Earth. Given that the gravitational field strength is 10 N/kg on Earth and 1.7 N/kg on the Moon. Determine the mass and weight of the box on the Moon.

	Mass on Moon	Weight on Moon
A	50 kg	85 N
B	50 kg	850 N
C	500 kg	850 N
D	500 kg	8500 N

Q7

A girl pour 32 g of sugar of density 1.6 g/cm^3 into 100 cm^3 of water to make sugar solution. If the density of water is 1.0 g/cm^3, what is the density of the sugar solution?

A 1.0 g/cm^3 B 1.1 g/cm^3 C 1.3 g/cm^3 D 1.6 g.cm^3

2

Q8

The table shows the results of an experiment in which a sample of solid is placed in four different liquids.

liquid	density of liquid kg/m³	observation
paraffin	700	sinks
pure water	1 000	sinks
sea water	1 100	float
mercury	14 000	float

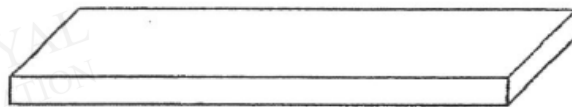Which of the following best describes the density of the solid?

A   between 700 kg/m³ to 1000 kg/m³

B   between 1000 kg/m³ to 1100 kg/m³

C   exactly 700 kg/m³

D   exactly 1000 kg/m³

Q9

A rectangular block is made of soft clay. The density of the clay is 1500 kg/m³.
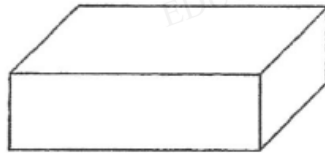
The block is cut into 3 equal parts. One part is reshaped to be twice as long and a quarter as thick.

What is the density of the block now?

A   250 kg/m³   C   1500 kg/m³

B   500 kg/m³   D   4000 kg/m³

Q10

A rectangular block of wood has length 6.0 cm, width 5.0 cm and height 10.0 cm.
Its mass is 150 g.

What is the density of the wood in kgm^{-3}?

A $2.0 \times 10^2\ kgm^{-3}$

B $5.0 \times 10^2\ kgm^{-3}$

C $2.0 \times 10^3\ kgm^{-3}$

D $5.0 \times 10^3\ kgm^{-3}$

Answers

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Q1 C

Q2 A

Q3 A

Q4 C

Q5 D

Q6 A

Q7 B

Q8 B

Q9 C

Q10 B