

Revision Sheet

IGCSE Physics · Unit 1 Motion, forces and energy

30 vocabulary items · 20 marks of exam questions (9 questions)

Part 1 · Vocabulary review (30 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

Write the English word.

1.

[1]
2.

[1]
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[1]
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28.

[1]
29.

[1]
30.

[1]

Part 2 · Exam questions (20 marks, 9 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

31 A student has a measuring cylinder containing water and also has a balance.

☐ Which of these could she use to find the volume of a small metal sphere?

She has no other apparatus.

- A** either the measuring cylinder containing water or the balance
- B** the measuring cylinder containing water only
- C** the balance only
- D** neither the measuring cylinder nor the balance

32 The table gives data about four liquids, W, X, Y and Z.

	liquid	mass / g	volume / cm ³
☐	W	10	10
	X	20	15
	Y	30	50
	Z	40	50

None of the liquids mixes with any of the other liquids.

All the liquids are put in the same container and settle to form four separate layers.

Which statement is correct?

- A** W forms the layer below X.
- B** X forms the top layer.
- C** Y forms the bottom layer.
- D** Z forms the layer below Y.

33 An object is moving at +3.0 m/s.

☐ A force acts on the object.

After a time, the object is moving at −4.0 m/s.

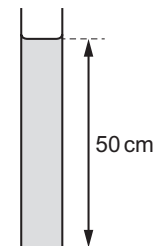
The mass of the object is 5.0 kg.

What is the change in momentum of the body?

- A** −35 kg m/s
- B** −5.0 kg m/s
- C** +5.0 kg m/s
- D** +35 kg m/s

34 The diagram shows a column of liquid. The pressure, due to the liquid, at the bottom of the liquid is 6000 N/m².

☐

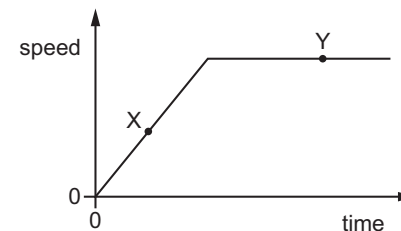


What is the density of the liquid?

- A** 310 kg/m³
- B** 1200 kg/m³
- C** 29 000 kg/m³
- D** 120 000 kg/m³

35 The diagram shows the speed–time graph for a car.

☐



Which row describes the motion of the car at point X and at point Y?

	point X	point Y
A	at rest	moving with constant speed
B	moving with constant speed	at rest
C	moving with changing speed	at rest
D	moving with changing speed	moving with constant speed

36 The drag force on a car increases with speed. At 20 m/s, the total drag force is 400 N. The mass of the car is 1200 kg and the driving force is constant at 700 N.

☐ Which statement about the acceleration of the car at 20 m/s is correct?

- A** The acceleration is 0.25 m/s^2 but will decrease as time passes.
- B** The acceleration is 0.25 m/s^2 but will increase as time passes.
- C** The acceleration is 0.58 m/s^2 but will decrease as time passes.
- D** The acceleration is 0.58 m/s^2 but will increase as time passes.

37 The equation used to find the change in gravitational potential energy of an object can be written as

☐

$$\Delta E_p = Y \times Z \times \Delta h$$

where ΔE_p is the change in gravitational energy and Δh is the change in height.

Which row gives the quantities Y and Z?

	Y	Z
A	mass	gravitational field strength
B	gravitational field strength	density
C	density	speed
D	speed	mass

38 Fig. 2.1 shows a ship loaded with containers.

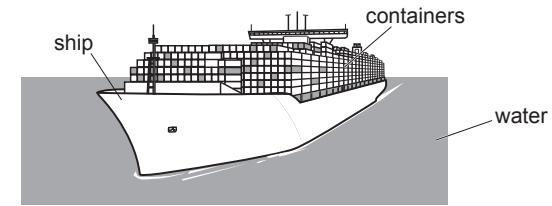


Fig. 2.1

(a) The ship is made of steel.

The density of steel is 7800 kg/m^3 and the density of water is 1000 kg/m^3 .

Explain why the ship floats in the water.

.....

 [2]

(b) The containers with the greatest mass are loaded near the bottom of the ship.

State and explain the effect on the stability of the ship of loading the containers in this way.

.....

 [2]

(c) A crane lifts a container 48 m vertically upwards. The mass of the container is 30 000 kg.

Calculate the energy transferred to the gravitational potential energy stored in the container.

energy = [2]

- 39** Fig. 2.1 shows a spring balance used to measure the weight of a baby. The spring inside the balance extends when a mass is suspended from it. The dial shows the extension of spring as a value of mass in kg.

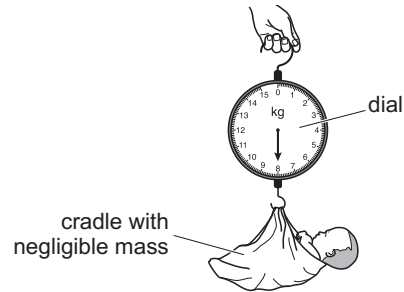


Fig. 2.1

The spring obeys Hooke's law up to a weight of 175 N.

- (a) (i)** State Hooke's law.

.....
 [1]

- (ii)** State the relationship between the mass of the baby and the force exerted on the spring due to the baby.

.....
 [1]

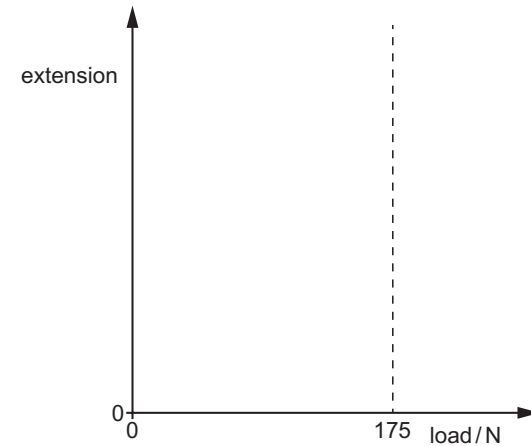
- (iii)** The reading on the spring balance is 8.0 kg.

Determine the force exerted on the spring due to the baby.

force = [1]

- (b)** The limit of proportionality for the spring is at a force of 175 N.

Sketch the extension–load graph for the spring. The sketch must continue beyond a force of 175 N.



[2]

- (c)** The baby is carried from the ground floor to the bedroom. The vertical height of the bedroom above the ground floor is 3.5 m.

Calculate the change in gravitational potential energy of the baby when it is carried from the ground floor to the bedroom.

change in gravitational potential energy = [2]

[Total: 7]