FUCHUN SECONDARY SCHOOL
PRELIMINARY EXAMINATION 2022
SECONDARY FOUR NORMAL (ACADEMIC)

CANDIDATE NAME							CLASS		
CENTRE NUMBER	S						INDEX NUMBER		

SCIENCE (PHYSICS) 5105/01

Paper 1 Multiple Choice **01 August 2022**

Papers 1 and 2: 1 hour 15 minutes

Additional Materials: Multiple Choice Answer Sheet

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.

Do not use staples, paper clips, glue or correction fluid.

Write your name, Centre number, index number and class on the Answer Sheet in the spaces provided.

There are **twenty** questions on this paper. Answer **all** questions. For each question there are four possible answers **A**, **B**, **C** and **D**.

Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Answers to Paper 1 and Paper 2 must be handed in separately.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.

You are advised to spend no more than **30 minutes** on **Paper 1**.

You may proceed to answer Paper 2 as soon as you have completed Paper 1.

Any rough working should be done in this booklet.

The use of an approved scientific calculator is expected, where appropriate.

Setter: Mr LH Liang

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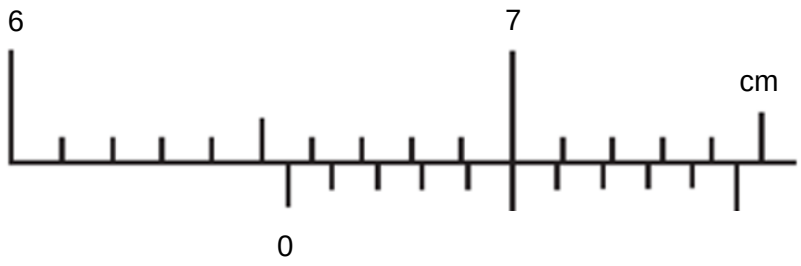
1 The figure below shows part of a vernier calipers.



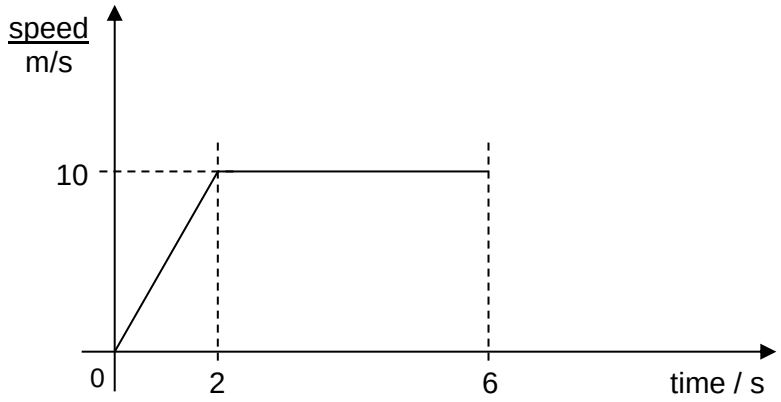
What is the reading shown on the vernier calipers?

A 6.50 cm **B** 6.55 cm **C** 7.00 cm **D** 7.45 cm

2 Which symbol indicates the prefix micro?

A m **B** M **C** μ **D** λ

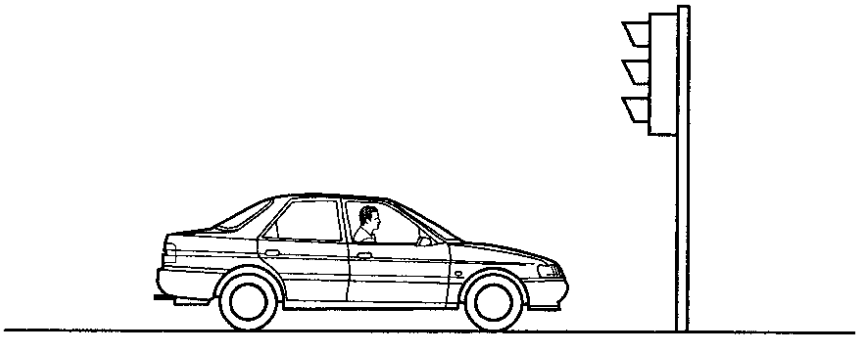
3 The graph represents the movement of a car.



How far has the car moved between 0 and 6 s?

A 20 m **B** 50 m **C** 60 m **D** 80 m

4 A car has stopped at traffic lights.

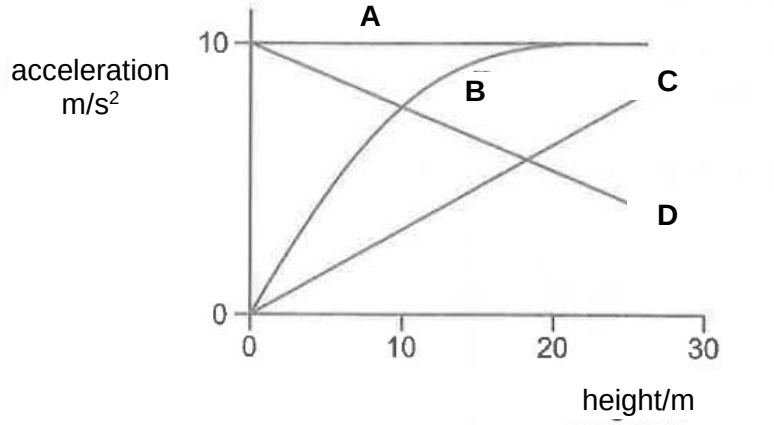


Ten seconds after restarting, the car travels at a speed of 40 m/s.

What is its acceleration in m/s^2?

A 0.25 m/s^2 **B** 4.0 m/s^2 **C** 30 m/s^2 **D** 400 m/s^2

5 Which graph shows the acceleration of free-fall for an object at different heights above the surface of the Earth?



6 A moving MRT brakes very suddenly. The standing passengers fall forward inside the MRT. Why does this happen?

A The passengers have inertia.
B The MRT has inertia.
C There is a forward force on the MRT.
D There is a forward force on the passengers.

7 Two identical bars are dropped separately into two identical containers containing two liquids, X and Y. After some time, the contents in the container settled as shown.

Which statement is correct?

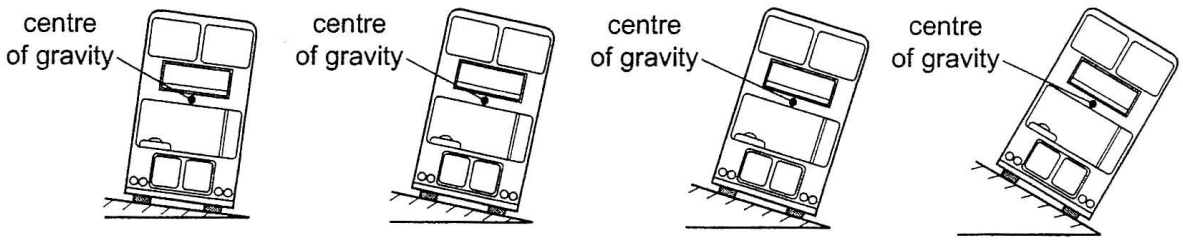
A Liquid X and liquid Y have the same density.

B Liquid X is less dense than liquid Y.

C Liquid Y is denser than the bar.

D The bar is less dense than liquid X.

8 The diagram shows four models of buses placed on different ramps.



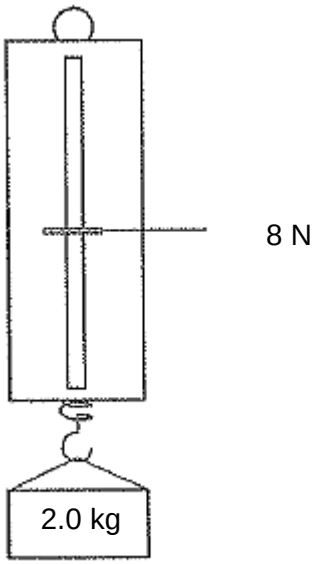
How many of these models will fall over?

A 1 **B** 2 **C** 3 **D** 4

9 The table shows the weight in newtons of a 10 kg mass on each of the four planets.

planet	weight of a 10 kg mass/N
Earth	100
Jupiter	250
Mercury	40
Venus	90

The diagram shows a force meter (spring balance) being used on one of these planets.



On which planet is the force meter (spring balance) being used?

A Earth
B Jupiter
C Mercury
D Venus

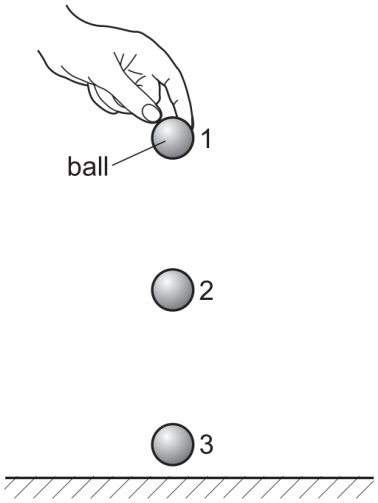
10 A tractor can switch between two types of tyres. The two types of tyres are a narrow tyre and a wide tyre.

narrow tyre wide tyre

Which type will sink more into soft ground, and what is the reason?

	tyre	reason
A	narrow	greater pressure on the ground
B	narrow	less pressure on the ground
C	wide	greater pressure on the ground
D	wide	less pressure on the ground

11 A ball is dropped from a height as shown.



Ignoring effects of air resistance, which statement about the total energy of the ball is correct?

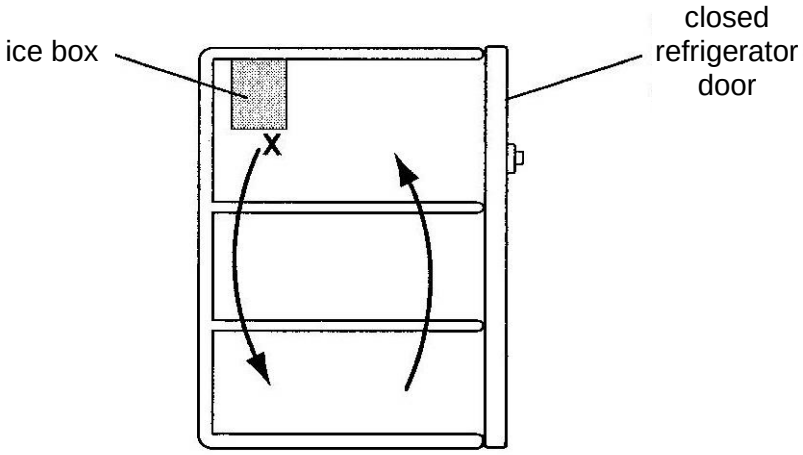
A It is the greatest at point 1.

B It is the greatest at point 2.

C It is the greatest at point 3.

D It is the same at all points.

12 The diagram shows how the air in a refrigerator moves because of a convection current.



What happens to the air at **X**?

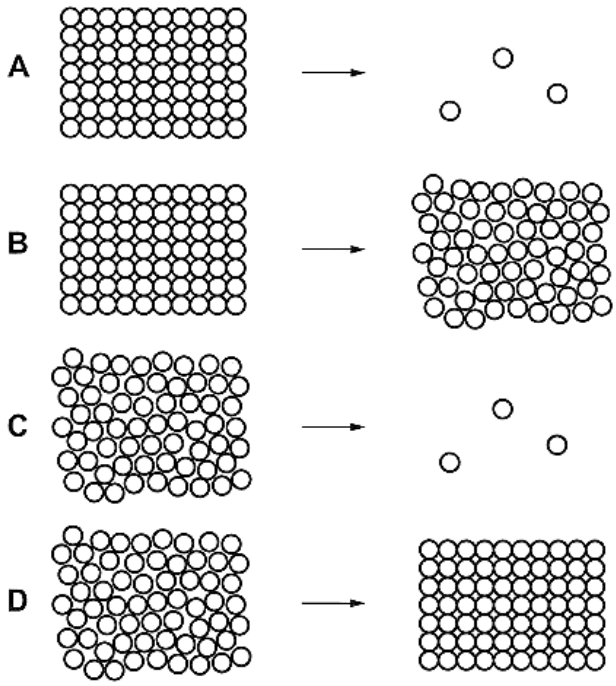
A It is cooled and becomes less dense.

B It is cooled and becomes more dense.

C It is warmed and becomes less dense.

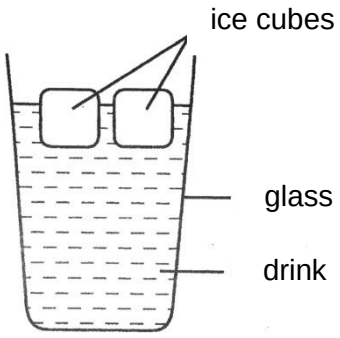
D It is warmed and becomes more dense.

13 Which of the following diagrams represents the process of boiling?



14 A glass of drink is at room temperature.

Several ice cubes at a temperature of 0°C are dropped into it and they begin to melt immediately.

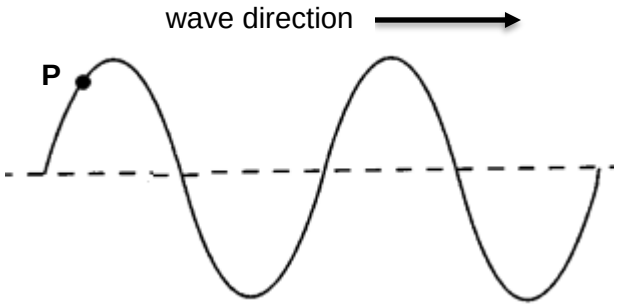


What happens to the internal potential energy and internal kinetic energy of the ice cubes?

	internal potential energy	internal kinetic energy
A	increases	constant
B	increases	decreases
C	constant	increases
D	constant	decreases

15 The diagram shows a wave on a string.

Point **P** is marked on the string. The wave is moving in the direction shown.



Which direction with point **P** move next?

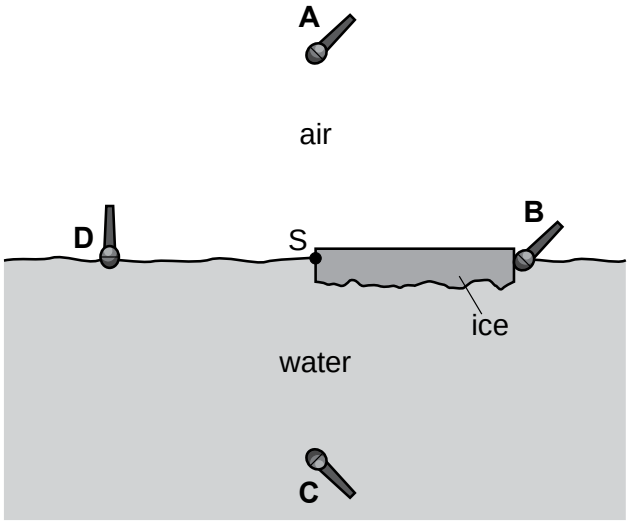
A P will move down.

B P will move up.

C P will move to the right.

D P will move to the left.

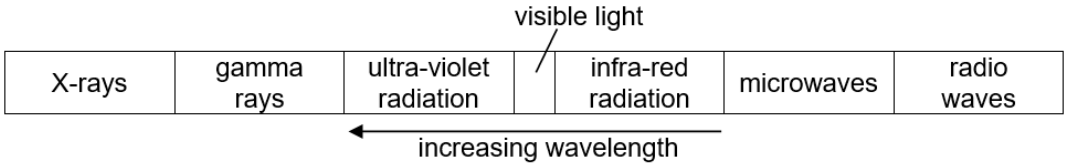
16 A sheet of ice floats on water. A source of sound S is positioned at the edge of the ice sheet. Four microphones are placed equal distances from S.



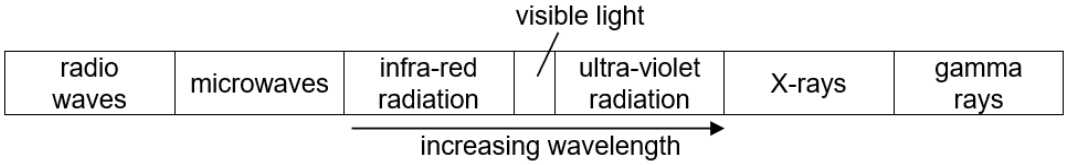
Which microphone detects the sound from S last?

17 Which representation of the electromagnetic spectrum is correct?

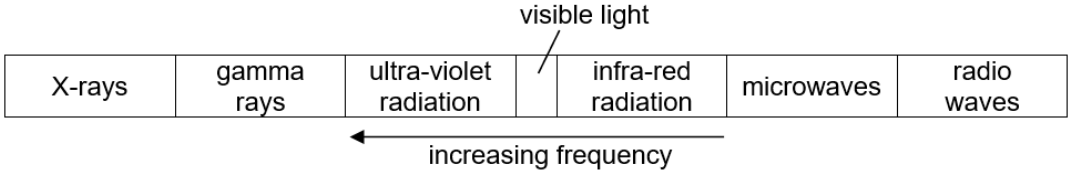
A



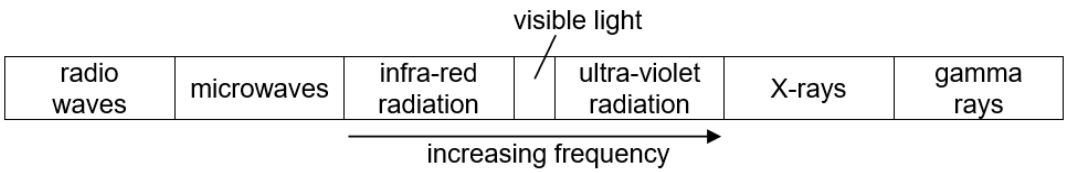
B



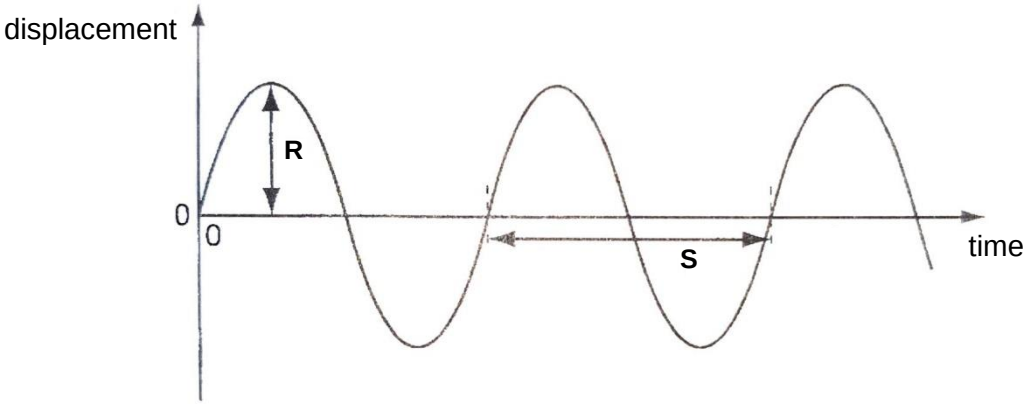
C



D



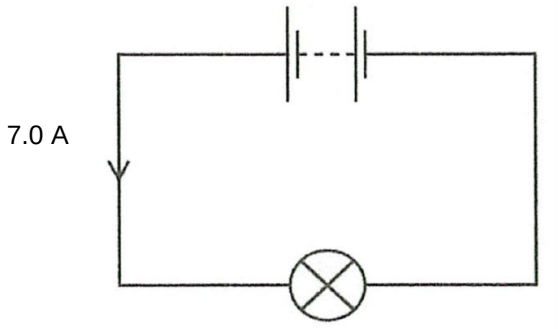
18 The diagram shows a displacement-time graph of wave motion.



Which quantities are shown by **R** and **S**?

	R	S
A	amplitude	period
B	amplitude	wavelength
C	half the amplitude	period
D	half the amplitude	wavelength

19 The circuit shows a current of 7.0 A flows in the circuit for 9.0 s.

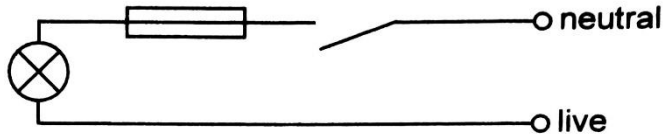


How much charge flows through the lamp?

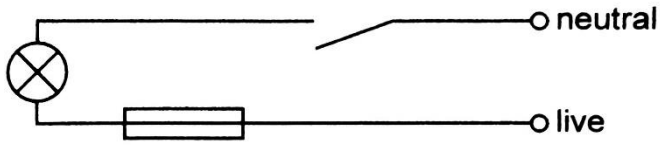
A 0.78 C **B** 42 C **C** 54 C **D** 63 C

20 Which circuit is the safest to use?

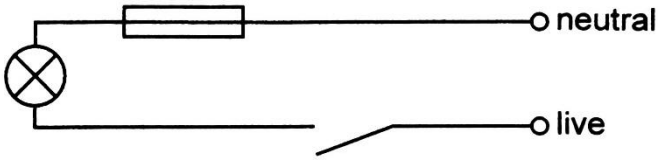
A



B



C



D