Name	Index Number	Class
WOODG	ROVE SECONDAF = A COMMUNITY OF FUTURE-READY LEARNERS	RY SCHOOL 5 AND THOUGHTFUL LEADER: N 2022
LEVEL & STREAM	: Secondary 4 Normal (Academic	:)
SUBJECT (CODE)	: Science (Physics) (5105)	
PAPER NO	: 1	
DATE (DAY)	: 16 August 2022 (Tuesday)	
DURATION	: 1 hr 15 mins (Paper 1 and Paper	er 2)
Choose the one you consider con Sheet. Read the instructions on the An Answers to Paper 1 and Paper 2 r Each correct answer will score on You are advised to spend no more You may proceed to answer Pape Any rough working should be done The use of an approved scientific	rect and record your choice in soft pencil on swer Sheet very carefully. must be handed in separately. The mark. A mark will not be deducted for a we than 30 minutes on Paper 1 . For 2 as soon as you have completed Paper 7 e in this paper. calculator is expected, where appropriate.	n the separate Answer rong answer. 1.
This document consists of 7 printe Setter : Mr Phillip Tan	ed pages including this cover page	For Examiner's Use Total /2

1 A digital stopwatch is used to time a race. The diagrams show the stopwatch at the start and at the end of the race.



How long did the race take?

- A 41.5 seconds
- B 42.0 seconds
- C 42.5 seconds
- D 43.0 seconds
- **2** A body near to the surface of the Earth is falling freely in a vacuum.

Which word describes the acceleration of the body?

- A increasing
- B deceasing
- C constant
- D zero
- 3 An object of mass 5 kg has three forces acting on it as shown.



Find the acceleration of the object.

- **A** 12 m / s^2 to the left
- **B** 9 m / s^2 to the right
- **C** $3 \text{ m} / \text{s}^2$ to the left
- **D** $3 \text{ m} / \text{s}^2$ to the right

- 4 Which property of a body describes the resistance to any change of motion?
 - A inertia
 - B balance
 - **C** force
 - D weight
- **5** A solid metal cube is melted into two identical spheres. Which statement about the densities of the cube and sphere is correct.
 - **A** The density of the cube is more than twice the density of the sphere.
 - **B** The density of the cube is exactly twice the density of the sphere.
 - **C** The density of the cube is halved the density of the sphere.
 - **D** The density of the cube is equal to the density of the sphere.
- 6 A uniform bar is pivoted at its centre.



What force F is needed to balance the bar?

- **A** 5.0 N
- **B** 10.0 N
- **C** 20.0 N
- **D** 30.0 N
- 7 An empty glass placed on a sloping surface as shown. The glass remains stable.

Where is its centre of gravity?



8 The diagram below shows a single brick and a stack of bricks placed on a flat ground. All the bricks are identical.



The pressure exerted by the single brick on the ground is P. What is the pressure exerted by the stack of four bricks on the ground?

- A P
- **B** 4P
- $\begin{array}{c} \mathbf{C} & \frac{1}{2} \mathbf{P} \\ \mathbf{D} & \frac{1}{4} \mathbf{P} \end{array}$
- 9 What is the principle of conversation of energy?
 - A Energy can be stored.
 - **B** Energy can be lost to surroundings.
 - **C** Energy can be destroyed.
 - **D** Energy cannot be created or destroyed.
- 10 Which statement describes the arrangement and movement of particles in a solid?

	Arrangement of particles	Movement of particles
Α	Randomly packed without a	Particles are free to move
	regular pattern	
В	Closely packed in a regular	Particles do not move.
	pattern	
С	Randomly packed without a	Particles vibrate about their fixed
_	regular pattern	positions.
D	Closely packed in a regular	Particles vibrate about their fixed
	pattern	positions.

- 11 In a transverse wave, the particles of the medium oscillate _____
 - A in phase with one another
 - **B** with different frequencies
 - **C** perpendicular to the direction of wave travel
 - **D** parallel to the direction of wave travel

12 Equal volumes of water are poured into four containers as shown in the diagram below. The temperature of the water in all containers is the same at 70 °C and they are left in a room which is at 20 °C. Which container will have the water with highest temperature after 10 minutes?



13 Which of the following statements does **not** describe the difference between boiling and evaporation processes of liquid.

	Boiling	Evaporation	
Α	Temperature of liquid remains constant.	Temperature of liquid rises.	
В	Takes place at a fixed temperature.	Occurs at any temperature above melting point.	
С	Bubbles are formed in the liquid.	No bubbles are formed in the liquid	
D	Occurs throughout the liquid.	Occurs only at the surface of the liquid.	

14 The table below shows some of the components of the electromagnetic spectrum.

Decreasing wavelength

Radio	Р	Q	Visible light	Ultraviolet	R
waves				radiation	

What are P, Q and R?

	Р	Q	R
Α	microwaves	Infra-red	X-rays
В	Infra-red	microwaves	gamma rays
С	X-rays	microwaves	Infra-red
D	gamma rays	Infra-red	microwaves

15 The waveforms of two different sounds are shown. The scales are the same in each diagram.



How does sound 1 compare with sound 2?

- A Sound 1 is louder and has a lower pitch than sound 2.
- **B** Sound 1 is quieter and has a lower pitch than sound 2.
- **C** Sound 1 is louder and has a higher pitch than sound 2.
- **D** Sound 1 is quieter and has a higher pitch than sound 2.
- **16** The circuit shows a lamp connected to a 5.0 V battery source.



A current of 10 A flows in the circuit for 20 s.

How much charge flows through the lamp?

- **A** 0.5 C
- **B** 50 C
- **C** 100 C
- **D** 200 C
- **17** The diagrams below show four copper wires of different length and cross-sectional areas. Which wire has the least resistance?



18 Which circuit is used to vary the brightness of a lamp?



19 A plug connected to an electric toaster contains a fuse with a 3.0 A rating.

Which statement correctly explain why the fuse is needed?

- A The fuse make it easier for the current to flow.
- **B** The fuse decreases the resistance of the circuit.
- **C** The fuse breaks the circuit if the current exceeds 3.0 A.
- **D** The fuse keeps the current at 3.0 A.
- **20** The diagram shows the wiring in a mains plug.



Which of the following row is correct?

	wire X	wire Y	wire Z
Α	neutral	live	earth
В	neutral	earth	live
С	live	neutral	earth
D	earth	neutral	live