

CATHOLIC HIGH SCHOOL Term 1 Class Test Year 4 (Integrated Programme) 2023

Answers for Section A

1	D	2	A	3	С	4	D	5	С
6	С	7	С	8	В	9	В	10	С

Remarks 11(a) Pressure is the force acting (perpendicularly) per unit area. [B1] Mark at the lowest point in Fig 11.1 [B1] (b) (c) Let the pressure of the gas be Pg Pressure of gas measured Pressure of gas measured by mercury manometer by water manometer = $h_m \rho_m g + P_{atm} = h_w \rho_w g + P_{atm}$ $h_m \rho_m$ hw ρ_W $h_{w} = \frac{\frac{0.05 \times 13\ 600}{1000}}{1000}$ [B1] = 0.68 m [B1] 12(a) The air molecules are in constant random motion. As the temperature of the gas increases, 1) average KE of air molecules increases / air molecules move faster 2) air molecules hit the walls of the cooker with greater force per unit area 3) frequency of collision of the air molecules on the wall of the cooker increases Hence, pressure in the gas increases (b)(i) Thick wall ensures that the wall can withstand the large pressure, built inside the container (and hence container will not crack) [B1] (ii) The safety valve ensures that some gas can be released to prevent excessive build-up of pressure inside the cooker [B1]

Answers for Section B

13(a)	It is the temperature of steam from boiling pure water at one standard atmospheric pressure. [B1]		
(b)	Ream out	Diagram must show 1) thermometer abo water 2) manometer 3) steam out 4) heat source (dor need Bunsen flame	v ove n't e)
	Set up the thermometer as shown in the diagram above, placing its bulb above the pure boiling water. (The manometer is to check whether the pressure inside the setup is equal to the outside at one standard atmospheric pressure.) [B1] When the liquid level/meniscus is steady in the thermometer, this position is marked as 100 °C. [B1]		
14(a)			
(b)	The flame <u>heats up</u> the water at the bottom of the pot, this causes it to expand, becomes less dense and rises. [B1] The cooler <u>denser water above will sink</u> to take its place. The cycle repeats itself and a convection current is set up. [B1]		
(c)	In the wooden chopsticks, the primary mode of heat transfer is <u>molecular vibration</u> .[B1] In the metal chopsticks, besides molecular vibration which is the primary mode of heat transfer, heat can also be transferred by <u>free electron diffusion</u> which is a faster and more efficient mode of heat transfer as compared to molecular vibration [B1]. This will ensure that the user will not experience the high temperature when using the chopsticks.		
I			



_	Fig. 16.1			Formatted: Font color: Auto
	Fig. 10.1			
_ The	speed of sound in air is 300 m / s.	Formatted: Font color: Auto		
<mark>, (a)</mark>	Calculate the wavelength of the wave.			Formatted: Font color: Auto
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• (D)	Suggestion a reason why the amplitude of the wave decreases.			Formatted: Font color: Auto
A				Formatted: Font color: Auto
A		[4]	1	Formatted: Font color: Auto
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(c)	The source now emits another sound with a similar waveform but of twice the pitch and same loudness.	[2]		
	On Fig. 16.1, sketch the graph of this wave for the same number of cycles.			
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