

Cambridge IGCSE™

PHYSICS	0625/03
Paper 3 Theory (Core)	For examination from 2023
MARK SCHEME	
Maximum Mark: 80	

Specimen

This document has **12** pages. Any blank pages are indicated.

Question	Answer	Marks
1(a)	72 (s)	B1
1(b)	(average speed =) $\frac{\text{distance}}{\text{time}}$	C1
	$\frac{120}{54}$	C1
	2.2(2) (m / s)	A1
1(c)	area under line OR three areas indicated OR (dist =) (av.) speed $\times$ time OR $\frac{1}{2} (b + h) \times L$	C1
	$\frac{1}{2} \times 5 \times 4.0$ OR 7 (m) seen OR 6×3.5 OR 21 (m)	C1
	6×3.5 OR 21 (m) AND $\{\frac{1}{2} \times 3.5 \times 4.0$ OR 7 (m) $\}$ OR 14 (m)	C1
	(21 + 14 =) 35 (m)	A1

Question	Answer	Marks
2(a)	$W = mg$ OR $(m =) \frac{W}{g}$ OR $\frac{3.0}{9.8}$	C1
	0.31 (kg)	A1
2(b)(i)	any four from: partly fill the measuring cylinder with water o.w.t.t.e. determine/read volume of water in measuring cylinder (submerge/sink) metal in water determine/read new volume of water (and metal) find difference between final and initial volumes	B4
2(b)(ii)	wood floats	B1

Question	Answer	Marks
2(b)(iii)	$D = \frac{M}{V}$	C1
	$\frac{405}{150}$	C1
	2.7 (g / cm ³)	A1
3(a)(i)	(moment =) force × distance	C1
	150 × 0.5	C1
	75	A1
	Nm	B1
3(a)(ii)	accept any example involving turning forces	B1
3(b)	increase distance (of force from pivot)	B1

Question	Answer	Marks
4(a)	Fig. 4.1. solar / Sun	B1
	Fig. 4.2. wind / Sun	B1
4(b)(i)	any two from: (renewable sources) are replaceable in a short time no (atmospheric) pollution conserves fossil fuels do not contribute to global warming	B2
4(b)(ii)	any one from: dependent on weather supply of energy is intermittent	B1

Question	Answer	Marks
5(a)(i)	(pressure) increases	B1
5(a)(ii)	any four from: (air) molecules/particles have more (kinetic) energy / move faster more frequent collisions harder collisions (with walls) collisions with walls idea of collisions causing force	B4
5(b)	$P = \frac{F}{A}$ in any form words or symbols	C1
	$\frac{5.4}{9.2}$	C1
	0.59 (N / cm ²)	A1

Question	Answer	Marks
6(a)	(26 – 23 =) 3 (°C)	B1
6(b)	any three from: use metal pipe paint black or use black pipe use matt or dull (paint) (place) reflector behind pipe use long(er) pipe use pipe with great(er) surface area slow(er) flow rate (place) glass / (clear) plastic cover over pipe	B3
6(c)	infrared (radiation through space / air)	B1
	conduction <u>through pipe</u>	B1

Question	Answer	Marks
7(a)	wavelength correctly indicated	B1
7(b)	12 (cm)	B1
7(c)	$\frac{40}{60}$	C1
	0.67 (Hz)	A1
7(d)	direction of travel perpendicular to direction of vibration o.w.t.t.e.	B1
7(e)	any component of the electromagnetic spectrum OR seismic S-waves	B1
8(a)	(angle) z	B1
8(b)	3 curved waves after gap	M1
	diverging	A1
	equal gaps for equal wavelengths	B1

Question	Answer	Marks
9(a)(i)	microwaves	B1
9(a)(ii)	3.0×10^8 (m / s)	B1
9(a)(iii)	ultraviolet or X-rays or gamma / γ -rays	B1
9(b)(i)	<i>X-rays:</i> any one from: detecting broken bones / damaged teeth OR detecting / treating cancer	B1
	<i>gamma:</i> any one from: detecting / treating cancer OR sterilising (hospital) equipment / food	B1
9(b)(ii)	any two from: ionising radiations / high frequency / high energy (e-m radiation) (may) damage or mutate cells / DNA (may) cause radiation burns	B2

Question	Answer	Marks
10(a)	heater clearly identified	B1
10(b)	change (size of) current (in heater)	B1
	(and so) change temperature of heater or output of heater	B1
10(c)	$V = IR$ in any form or $\frac{V}{I}$	C1
	$\frac{250}{2}$	C1
	125 (Ω)	A1
10(d)	fuse	M1
	(large) current melts fuse wire o.w.t.t.e.	A1

Question	Answer	Marks
11(a)	symbol description A Z X number of neutrons element symbol proton number nucleon number number of atoms	B1
		B1
		B1

Question	Answer	Marks
11(b)	$\frac{18}{6}$ or 3 half-lives seen or implied	C1
	$\frac{1}{8}$ or division by 8	C1
	1.5 (mg)	A1

Question	Answer	Marks
12(a)(i)	ultraviolet (radiation) visible light (rays) infrared (radiation) any one for 1 mark all three for both marks	B2
12(a)(ii)	hydrogen and helium	B1
12(b)	any three from: wavelength from distant galaxy is measured/compared with wavelength (of line spectrum) on Earth wavelength from distant galaxy is longer OR shifted to(wards) red end of spectrum distant galaxy is receding OR moving away from the Earth evidence that the Universe is expanding	B3