

Cambridge IGCSE™

PHYSICS

0625/33

Paper 3 Core Theory

May/June 2021

MARK SCHEME

Maximum Mark: 80

Published

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This document consists of **10** printed pages.

Question	Answer	Marks
1(a)	(distance =) area under graph	C1
	16×30	C1
	480 (m)	A1
1(b)	$(110 - 60 =) 50$	B1
	(speed =) distance $\div$ time in any form	C1
	$460 / 50$	C1
	9.2 (m / s)	A1
1(c)	constant speed OR <u>16 m/s</u>	B1
1(d)	decelerating OR negative acceleration OR slowing down / owtte	B1

Question	Answer	Marks
2(a)	find mass of measuring cylinder / beaker / container empty	B1
	add sea water AND read volume	B1
	find mass of measuring cylinder / beaker / container with seawater	B1
	subtract the 2 mass readings (to give mass of seawater)	B1
	$(D) = M \div V$ in any form	B1
2(b)	wood less dense (than seawater) / ora	B1

Question	Answer	Marks
3(a)(i)	force $\times$ (perp) distance	C1
	240×1.9	C1
	456 (Nm) (which is close to 460 Nm)	A1
3(a)(ii)	c.w. moment = a.c.w moment OR girl's moment = brother's moment	C1
	$240 \times 1.9 = W \times 1.2$ OR $456 \div 1.2$ OR $460 \div 1.2$	C1
	380 (N)	A1
3(b)	$W = mg$ in any form OR $(m =) W \div g$	C1
	$240 \div 10$	C1
	24	A1
	kg	B1

Question	Answer	Marks
4(a)(i)	chemical (energy)	B1
4(a)(ii)	any two from: friction thermal / heat vibrations / sound resistance in wires	B2

Question	Answer	Marks
4(b)	any two advantages: free fuel renewable no air pollution / no SO ₂ / no acid rain no greenhouse gases / CO ₂ emissions little / no maintenance quiet	B2
	any two disadvantages: needs a lot of space no energy at night less energy when cloudy / winter D.C.	B2

Question	Answer	Marks
5(a)	$P = F \div A$ in any form	B1
	tractor has larger area (of tyre(s) in contact with ground) / ora	B1
	so (tractor) pressure is less (on the ground) / ora	B1
5(b)	kinetic energy of molecules increases / speed of molecules increases	B1
	hit (tyre walls) more often / greater rate	B1
	hit (tyre walls) with greater force / harder	B1

Question	Answer	Marks
6(a)(i)	conduction	B1
6(a)(ii)	melts wax OR pin falls off	C1
	first pin to fall (is best conductor)	A1

Question	Answer	Marks
6(b)(i)	radiation	B1
6(b)(ii)	radiation	B1
6(c)	foil reflects (radiation / infrared / radiant heat)	B1
	more energy into room (from heater)	B1

Question	Answer	Marks
7(a)(i)	infrared / microwaves / radio waves	B1
7(a)(ii)	ultraviolet / X-rays / gamma rays	B1
7(a)(iii)	middle box ticked (speed)	B1
7(a)(iv)	top box ticked (All electromagnetic waves are transverse.)	B1
7(a)(v)	top box ticked (They transfer energy from one place to another.)	B1
7(b)(i)	infrared	B1
7(b)(ii)	X-rays	B1

Question	Answer	Marks
8(a)(i)	c	B1
8(a)(ii)	normal	B1
8(a)(iii)	reflected ray a continuation of incident ray AND in correct quadrant	M1
	angle of reflection equals angle of incidence	A1

Question	Answer	Marks
8(b)(i)	continuation of incident ray AND reflected internally in correct quadrant	M1
	angle of reflection equals angle of incidence	A1
8(b)(ii)	continuation of incident ray AND emerging from block in correct quadrant	M1
	angle of refraction larger than angle of incidence	A1

Question	Answer	Marks
9(a)	showing repulsion	B1
9(b)	insulators: rubber AND wood	B1
	conductors: iron AND gold	B1
9(c)	electrons / negative charges	B1
	move / transfer	B1
	from cloth to rod	B1

Question	Answer	Marks
10(a)	top to heater	B1
	middle to thermistor	B1
	bottom to galvanometer	B1
10(b)(i)	voltmeter symbol	B1
	in parallel with resistor / supply	B1

Question	Answer	Marks
10(b)(ii)	$V = I \times R$ in any form	C1
	$11.5 \div 0.25$	C1
	46	A1
	ohms / Ω	B1

Question	Answer	Marks
11(a)(i)	7	B1
11(a)(ii)	6	B1
11(a)(iii)	7	B1
11(b)	using a pair of values e.g. 300 and 150 OR 212 and 106 etc.	C1
	(difference in time is) 10 (min)	A1