

Cambridge IGCSE™

PHYSICS

0625/33

Paper 3 Core Theory

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MARK SCHEME

Maximum Mark: 80

Published

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This document consists of **12** printed pages.

Question	Answer	Marks
1(a)(i)	18 (m / s)	A1
1(a)(ii)	12 (m / s)	A2
	any indication on graph or in working of vertical / horizontal line from 65.0 s	(C1)
1(b)	(speed of bus) decreasing OR slows (down) OR decelerates	B1
	(then speed is) zero OR stops / stationary	B1
1(c)	90 (m)	A3
	$\frac{1}{2} \times 10 \times 18$	(C2)
	(distance =) area under graph OR $\frac{1}{2} b \times h$ OR speed $\times$ time	(C1)
1(d)	line starts from (40, 14)	M1
	line ends at (45, 6)	A1

Question	Answer	Marks
2(a)(i)	gravitational potential	B1
2(a)(ii)	(work done =) force $\times$ distance OR ($W =$) $F \times d$	B1
	140×3.2 OR 448	B1
2(b)(i)	6(.0) (s)	A3
	450 / 75	(C2)
	(time =) work done / power OR (Δ)E / power	(C1)
2(b)(ii)	any one from: no gaseous / SO ₂ emissions / air pollution does not contribute to global warming / CO ₂ renewable (source of energy)	B1

Question	Answer	Marks
3(a)	1.8 (N)	A2
	(weight =) mass $\times$ gravitational field strength in any form OR $m \times g$ OR $m \times 9.8$ OR 0.18×9.8	(C1)
3(b)	2900 (cm ³)	A4
	2700 / 0.92	(C3)
	(volume =) mass / density OR $V = m / \rho$	(C1)
	conversion of 2.7 kg to 2700 g	(C1)
3(c)	P on <u>top</u> liquid surface	B1
	M on <u>bottom</u> of bowl	B1

Question	Answer	Marks
4(a)(i)	reduces heat transfer (to handle) OR wood is an insulator	B1
4(a)(ii)	poor / worst emitter (of heat)	B1
	(of) infrared / radiation	B1
4(a)(iii)	allows heat transfer (to water) OR (good) conductor (of heat)	B1
4(b)	any four from: conduction (through metal of heater) air particles gain kinetic energy / KE air particles move further apart hot air becomes less dense hot / less dense air rises OR cold / denser air falls idea of convection current	B4

Question	Answer	Marks
5(a)(i)	ultraviolet in LH box	B1
	microwaves in RH box	B1
5(a)(ii)	any two from: transverse do not need a medium OR travel through a vacuum (all have) same speed OR travel at 3×10^8 m / s (in a vacuum)	B2
5(b)(i)	electric grills / remote controllers (for televisions) / intruder alarms / thermal imaging / optical fibres / thermometers / treatment of damaged muscles	B1
5(b)(ii)	(skin) burns	B1

Question	Answer	Marks
8(a)	7200	A3
	(Ns =) $500 \times 360 / 25$ OR 360×20	(C2)
	$V_p / V_s = N_p / N_s$	(C1)
8(b)	any two from: smaller current (in cables) more efficient less power / heating losses thinner / cheaper cables / pylons further apart less voltage drop OR transfer energy over longer distance	B2

Question	Answer	Marks
9(a)	(current repeatedly) changes direction	B1
9(b)(i)	any three from: magnetic effect of current coil becomes an electromagnet attracted to magnet repelled by magnet	B3
9(b)(ii)	any number(s) between 20 and 20 000	B1
	Hz / kHz	B1

Question	Answer	Marks
10(a)(i)	3	B1
10(a)(ii)	7	B1
10(a)(iii)	lose electron(s)	B1
10(b)	24 (days)	A2
	3 half lives	(C1)

Question	Answer	Marks
11(a)(i)	gravitational (attraction)	B1
11(a)(ii)	<u>365 (1/4) days</u>	B1
11(a)(iii)	<u>24 hours</u>	B1
11(a)(iv)	helium	B1
	hydrogen	B1
11(b)(i)	infrared OR ultraviolet	B1
11(b)(ii)	500 (s)	A3
	$1.5 \times 10^{11} / 3.0 \times 10^8$	(C2)
	(time =) distance / speed	(C1)