

Cambridge IGCSE™

PHYSICS**0625/32**

Paper 3 Core Theory

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MARK SCHEME

Maximum Mark: 80

Published

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This document consists of **13** printed pages.

Question	Answer	Marks
1(a)(i)	3(.0) (m / s)	A2
	any indication on graph or in working of vertical / horizontal line from 6.0 s	C1
1(a)(ii)	16 (m / s)	B1
1(b)(i)	(constant) accelerating / speed increasing	B1
1(b)(ii)	greater acceleration	B1
	line is steeper / greater gradient	B1
1(c)	25 (m)	A3
	$\frac{1}{2} \times 5 \times 10$	(C2)
	(distance =) area under graph OR $\frac{1}{2} \times b \times h$ OR (distance =) speed $\times$ time	(C1)

Question	Answer	Marks
2(a)	energy cannot be created or destroyed OR energy is only transformed or transferred (from one store / form / type to another)	B1
2(b)(i)	30 (%)	A2
	100 – 70	(C1)
2(b)(ii)	electrical car	M0
	greater kinetic energy (output) OR less energy wasted owtte	A1

Question	Answer	Marks
3(a)	2000 (N m)	A3
	1100×1.8	(C2)
	(moment =) force $\times$ (perpendicular) distance	(C1)
3(b)(i)	190 (N)	A3
	($W =$) $\{62 \times 1.2\} \div 0.4$ OR $74.4 \div 0.4$	(C2)
	(moment of spring =) 62×1.2 OR 74.4	(C1)
3(b)(ii)	(length of spring =) 17 (cm)	A2
	(extension =) 1.0 (cm)	(C1)

Question	Answer	Marks
4(a)	31 (N)	A2
	(weight =) mass $\times$ gravitation field strength OR $m \times g$ OR $m \times 9.8$ OR 3.2×9.8	(C1)
4(b)(i)	141(.12) (J) OR 139(.5) (J)	B1
	$3.2 \times 9.8 \times 4.5$ OR 31.36×4.5 OR 31×4.5	B1
	(work =) force $\times$ distance OR ($W =$) $F \times d$	B1
4(b)(ii)	141(.12) (J) OR 139(.5) (J) OR 140 (J)	B1
	work done = gain in (g)PE	B1

Question	Answer	Marks
5(a)	any two from: no sulfur dioxide (emission) OR acid rain (produced) no CO ₂ / greenhouse gases (emitted) OR no / reduces (impact on) global warming renewable (source of energy) no fuel predictable source owtte conserves coal / fossil fuel reserves	B2
5(b)	any two from: suitable locations limited OR locations remote marine ecosystems disrupted difficult to maintain limited production time owtte silt build up electrical transmission difficult disrupts shipping storm damage	B2

Question	Answer	Marks
6(a)	conduction AND convection	B1
	need a medium / particles (to transfer energy)	B1
6(b)	any four from: water particles gain thermal energy / KE (water) particles move apart warm water becomes less dense less dense water rises / more dense water falls (forming a) convection (current)	B4

Question	Answer	Marks
7(a)	oscillating / vibrating/backwards and forwards	B1
7(b)(i)	stopwatch / (stop)clock	B1
7(b)(ii)	540 (m)	A3
	340×1.6	(C1)
	(distance =) speed $\times$ time	(C1)
7(c)	20 – 20 000	B1
	Hz / hertz	B1

Question	Answer	Marks														
8(a)	top diagram ----- diffraction	B1														
	bottom diagram ----- refraction	B1														
8(b)(i)	<u>principal axis</u>	B1														
8(b)(ii)	<u>principal focus</u>	B1														
8(b)(iii)	vertical line from point where rays cross to the principal axis	B1														
8(b)(iv)	1.9 (cm)	B1														
8(b)(v)	<table><tr><td>enlarged</td><td>✓</td></tr><tr><td>diminished</td><td></td></tr><tr><td>same size</td><td></td></tr><tr><td>inverted</td><td>✓</td></tr><tr><td>upright</td><td></td></tr><tr><td>virtual</td><td></td></tr><tr><td>real</td><td>✓</td></tr></table>	enlarged	✓	diminished		same size		inverted	✓	upright		virtual		real	✓	B1
	enlarged	✓														
	diminished															
	same size															
	inverted	✓														
	upright															
	virtual															
real	✓															
		B1														
		B1														

Question	Answer	Marks
9(a)(i)	(prevent) risk of (electric) shock / electrocution	B1
9(a)(ii)	3.1 (A)	A3
	720/230	(C2)
	(current =) power / voltage OR ($I = P / V$)	(C1)
9(b)	468 (cents)	A3
	26×18	(C2)
	(cost =) number of kWh $\times$ cost per kWh	(C1)
	number of kWh = 3797 – 3771 OR 26	(C1)

Question	Answer	Marks
10(a)(i)	(soft) iron	B1
10(a)(ii)	steel	B1
10(a)(iii)	magnet does not attract a non-magnetic material	B1
10(b)	any four from: (when switch closed) there is a complete circuit current in the circuit magnetic effect (of current / in coil) owtte (coil and nail become) electromagnet (springy) iron (strip) attracted to (nail / electromagnet) circuit broken owtte springy iron strip springs back / makes contact (again) owtte	B4

Question	Answer	Marks
11(a)(i)	${}^9_4\text{Be}$	B1
11(a)(ii)	neutron(s)	B1
11(b)(i)	A and B and D	B1
11(b)(ii)	A	B1
11(c)	2 (h)	A2
	3 half lives	(C1)

Question	Answer	Marks
12(a)	at least 4 named	M1
	all 5 in correct order	A1
12(b)	any two from: minor / dwarf planets / Pluto asteroids comets moons / natural satellites	B2
12(c)	Mercury is rocky AND small. (answers maybe in either order)	B1
	Jupiter is gaseous AND large. (answers maybe in either order)	B1