



PHYSICS

0625/32

Paper 3 Core Theory

October/November 2016

MARK SCHEME

Maximum Mark: 80

Published

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Page 2	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
1(a)	<u>speed</u> OR <u>velocity</u> on y-axis AND time x-axis	B1
1(b)	A to B	B1
1(c)	area under graph $0.5 \times 5 \times 5 (+ (3 \times 5))$ 27.5(m)	C1 C1 A1
1(d)	correctly placed continuous single thin straight line from A to E drawn using a rule	B1
	Total:	6

Question	Answer	Marks
2(a)	1 <u>rule(r)</u> 2 balance	B2
2(b)	250 (cm ³)	B1
2(c)	D = M/V in any form 20/250 0.8 (g/cm ³)	C1 C1 A1
2(d)	freon, glycerol, sea water	B2
	Total:	8

Page 3	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
3(a)	both boxes ticked	B1
3(b)	moment = force \times distance in any form 300 \times 1.4 420 (Nm)	C1 C1 A1
3(c)	clockwise moments = anticlockwise moments $W \times 0.6 = \text{candidates (b)}$ OR $W = \text{candidates (b)} / 0.6$ 700 (N)	C1 C1 A1
3(d)	child 's OR left side goes down OR adult side goes up OR right side goes up OR child's moment is larger OR child's turning force larger	B1
	Total:	8

Page 4	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
4(a)	$W = m \times g$ in any form 400 (N)	C1 A1
4(b)	pressure = force \div area in any form 400 OR candidates (a) \div 0.02 20 000 (N/m ²)	C1 C1 A1
4(c)	greater pressure OR wtte (same force/weight acts on a) smaller area	B1 B1
	Total:	7

Page 5	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
5(a)	<u>radiation</u>	B1
5(b)	black can has bigger rise or higher temperature silver reflects (radiant) heat (better) OR poor absorber of (radiant) heat black is (a better) absorber of thermal energy	B1 B1 B1
5(c)	<u>evaporation/evaporated</u> more energetic or higher energy molecules overcome force of attraction	B1 B1 B1
	Total:	7

Question	Answer	Marks
6(a)	(angle of) reflection	B1
6(b)(i)	image 'I' correctly positioned	B1
6(b)(ii)	angle of reflection incorrect OR object and image are not same distance from mirror angle of incidence \neq angle of reflection	C1 A1
	Total:	4

Page 6	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
7(a)	speed = distance \div time in any form indication of halving e.g. $450/2$ OR 1500×0.15 225 (m)	C1 C1 A1
7(b)	more than 20 000 Hz	B1
7(c)	any wave from electromagnetic spectrum	B1
	Total:	5

Question	Answer	Mark
8(a)	$30 \div 4$ 7.5 (cm)	C1 A1
8(b)	number of waves (passing a point) in 1 second	B1
8(c)	$f = 4/0.05$ 80 Hz	C1 A1 B1
	Total:	6

Page 7	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
9(a)(i)	changes higher voltage to lower voltage owtte	B1
9(a)(ii)	<u>copper</u>	B1
9(a)(iii)	$V_s/V_p = N_s/N_p$ in any form $(12/240) \times 10\,000 \div 20$ 500	C1 C1 A1
9(b)	any two from: thinner wires or cables less heating or less energy or power wasted or more efficient lower current in cables fewer power stations needed transmit longer distances (without drop in power)	B2
	Total:	7

Page 8	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
10(a)	heater clearly identified	B1
10(b)(i)	change current	B1
10(b)(ii)	change temperature of heater or output of heater	B1
10(c)	V = IR in any form or $V \div I$ 250 \div 2 125(Ω)	C1 C1 A1
10(d)	fuse (large) current melts fuse wire owtte	M1 A1
	Total:	8

Page 9	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
11(a)(i)	(current flow of charge in) one direction owtte	B1
11(a)(ii)	iron forms (temporary) magnet	B1 B1
11(b)	Any three from: current in coil creates electromagnet owtte (electromagnet) attracts armature contacts (on 2nd circuit) close 2nd circuit complete	B3
11(c)	prevent overheating of cables owtte	B1
	Total:	7

Page 10	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
12(a)	unstable atoms random/spontaneous decay (of atoms)	B1 B1
12(b)(i)	20 cpm = approx. 9000 AND 10 cpm = approx. 15 000	B1
12(b)(ii)	5000 – 6500	B1
12(c)	two half-life indicated 2.5 (g)	B1 B1
12(d)	any sensible precaution: tongs/screening/lead apron minimise time exposure maximise distance between source and people restrict access to sources etc.	B1
	Total:	7