

SECONDARY SCHOOL ANNUAL EXAMINATIONS 2011

Directorate for Quality and Standards in Education
Educational Assessment Unit

FORM 5

PHYSICS

MARKING SCHEME

SECTION A		40 MARKS	
Question	Answer	Mark	Additional Guidelines
1. a. i.	0.054 kg	1	
1. a. ii.	0.54 N	1	
1. a. iii.	18 Pa	1	
1. b.	2659.5 J	2	1 mark for correct value 1 mark for correct unit *
1. c. i.	increases / expands	1	
1. c. ii.	no change	1	
1. c. iii.	decreases / less	1	
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2. a. i.	10 m/s	1	
2. a. ii.	16 s	1	
2. b. i.	1000 kg	1	
2. b. ii.	50,000 or 5×10^4 J	2	
2. c. i.	deceleration = 0.625 m/s^2 or $a = -0.625 \text{ m/s}^2$	2	If 0.625 m/s^2 give only 1 mark
2. c. ii.	$F = -625 \text{ N}$	1	Accept 625 N
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3. a. i.	smaller	1	
3. a. ii.	d.c.	1	
3. a. iii.	a.c.	1	
3. b. i.	50 Hz	2	1 mark for correct value 1 mark for correct unit *
3. b. ii.	50 Hz	1	Do not accept '50'
3. c.	500 turns	2	1 mark for correct input of values in formula 1 mark for correct answer value
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4. a. i.	converging	1	
4. a. ii.	10 cm	1	
4. a. iii.	refraction	1	
4. b.	200 000 000 m/s	1	
4. c.	25°	2	
4. d. i.	Ray through optical centre	1	
4. d. ii.	Upright image in broken lines	1	Do not accept image drawn in full lines
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5. a. i.	H	1	
5. a. ii.	F	1	
5. b.	convection currents	1	
5. c. i.	no change	1	
5. c. ii.	no change	1	
5. c. iii.	decreases	1	
5. c. iv.	increases	1	
5. d.	diagram shows convection currents	1	

SECTION B		45 MARKS	
Question	Answer	Mark	Additional Guidelines
6. a.	Stand & clamp; ruler; steel spring; paper pointer; masses/weights	5	
6. b.	N; extension	2	
6. c. i.	y-axis e / mm; x-axis W / N	2	Accept 'e / cm'
6. c. ii.	extension; directly; load	3	
6. c. iii.	deformed / plastic	1	
6. c. iv.	0.5 kg	2	1 mark for correct value 1 mark for correct unit *
7. a. i.	6	1	
7. a. ii.	14	1	
7. a. iii.	8	1	
7. b. i.	β	1	Accept ${}^0_{-1}e$
7. b. ii.	0	1	
7. b. iii.	-1	1	Accept 'negative charge'
7. c. i.	proton	1	
7. c. ii.	B & D	1	
7. d. i.	Background radiation	1	
7. d. ii.	sun; outer space; rocks of earth containing radioactive substances; building bricks	2	Accept any two
7. d. iii.	G-M tube & counter	1	Do not accept G-M tube only
7. e. i.	half the radioactive atoms to decay	1	
7. e. ii.	4 days	1	
7. e. iii.	70 counts/minute	1	
8. a.	switch; ammeter; voltmeter; variable resistor (rheostat)	4	
8. b. i.	ammeter	1	
8. b. ii.	Variable resistor	1	Accept 'rheostat'
8. b. iii.	voltmeter	1	
8. c.	St. line graph passing through origin.	5	1 mark for correct labelling of axes and units 1 mark for graph title 1 mark for correct plotting of graph 1 mark for correct size of graph 1 mark for drawing a straight line passing through the origin
8. d. i.	0.35 A	1	
8. d. ii.	4.5 V	1	
8. e.	10 Ω	1	

- * If formula / equation used is correct, but numerical answer is wrong and units are correct give 1 mark
If formula / equation used is wrong, numerical answer is wrong but units are correct give 0 marks