

JUNIOR LYCEUM 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. i.	Appropriate diagram	3	2 marks for appropriate diagram 1 mark for labelling of at least spring, ruler & weights
6. a. ii.	Different weights are attached to the spring;	1	
	Each time the length of the spring is measured	1	
	The extension of the spring is calculated	1	
6. a. iii.	Force and extension	1	
	Newtons and metres/centimetres	1	
6. a. iv.	Straight line graph passing through origin	1	
	Both x and y axes are labelled	1	
	Units are given	1	
6. a. v.	$e \propto W$	1	
6. a. vi.	Double readings are taken; the ruler must be exactly vertical; readings are taken at eye level	1,1	Any two precautions
6. b.	$Mass = \frac{Weight}{g} = 5 / 10 = 0.5 \text{ kg}$	1	
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.	Different atoms / nuclei of same element have same Z but different A	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; bricks of buildings	1,1	Accept any two
7. d. iii.	G-M tube & counter	1	Do not accept G-M tube only
7. e. i.	Time taken for half the nuclei of an unstable radioactive sample to decay	1	
7. e. ii.	4 days	1	
7. e. iii.	25 counts/minute	1	

Question	Answer	Mark	Additional Guidelines
8. a.	Appropriate circuit diagram Ammeter connected in series Voltmeter connected in parallel to unknown resistor R	1 1 1	
8. b.	variable resistor	1	Accept 'rheostat'
8. c.	Appropriate graph	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.	0.3 A	1	
8. e.	10 Ω	2	1 for correct value 1 for correct units *
8. f.	Graph: straight line passing through origin	1	
8. g.	I depends on V. I is a dependent variable. Dependent variables are always plotted on the y-axis.	1	
8. h.	ohmic resistor	1	Accept 'resistor obey Ohm's law'

- * 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

