

CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

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MARK SCHEME for the May/June 2014 series

5054 PHYSICS

5054/41

Paper 4 (Alternative to Practical), maximum raw mark 30

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Page 2	Mark Scheme	Syllabus	
	GCE O LEVEL – May/June 2014	5054	

- 1 (a) emf/potential difference/voltage
- (b) 3.6 V cao [B1]
- (c) **any one from**
no parallax error
needle does not stick
easier to read/measure (current)
easier to change range
lower resistance [B1]
- (d) (i) 1. 0 [B1]
2. 4 V [B1]
3. 2 V [B1]
- (d) (ii) depends only on the cells/pd or voltage supplied **or** R increased and current decreased (so IR stays same) [B1]
- [7]

Page 3	Mark Scheme	Syllabus
	GCE O LEVEL – May/June 2014	5054

- 2 (a) (i) eye marked level with meniscus
- (ii) **any one from**
 so meniscus is above side of beaker / not below rim of beaker
 so not looking through side of beaker
 condensation on side of beaker obscures view [B1]
- (iii) **any one from**
 room cooler than water
 may cool due to evaporation (on bulb)
 temp shown falls (to room temp)
 will measure room / air temp [B1]
- (iv) 43 °C [B1]
- (b) (i) volume (of water added) / cm³ [B1]
 temperature (of water) / °C [B1]
- (ii) axes labelled quantity and unit [B1]
 scales linear and correct way round – y: 2 cm ≡ 10 °C [B1]
 – x: 2 cm ≡ 50 cm³ [B1]
 points plotted accurately [B1]
 smooth curve of best fit [B1]
- (iii) 57 °C ± 1 °C [B1]
- (iv) large amount of water added [B1]
 reference to 450 cm³
- (v) **any one from**
 temp drop becomes small (for each 60 cm³)
 water would fill beaker / overflow
 run out of water in beaker A
 experiment takes too long [B1]
- [13]

Page 4	Mark Scheme	Syllabus	5054
	GCE O LEVEL – May/June 2014		

- 3 (a) (i)** 0.5 to 1(.0)cm³
- (ii) B**
most sensitive/volume marble small/has 0.2cm³ divisions/volume less than 10 cm³ [A1]
would not fit into A [A1]
- (iii)** two readings and subtract [B1]
- (b) (i)** less fragile/will not break/cheaper [B1]
- (i)** flat meniscus [B1]
- [6]
- 4** use of object and screen **or** use of ray box and paper (with cylindrical lens) [B1]
- how image focused on screen described
e.g. distance from lens to screen varied [B1]
e.g. two rays crossing on paper [B1]
- lens reversed [B1]
- correct reference to prediction
e.g. no longer in focus [B1]
- [4]