

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

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MARK SCHEME for the October/November 2014 series

5054 PHYSICS

5054/42

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

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- 1 (a) dot/mark/cross at one end of compass needle
 move compass to point to (previous) dot, new dot
 repeat along one line and join the dots
 repeat with different start points / more lines
 B1
 B1
 B1
- (b) any **one** from:
 more dots / dots closer together
 smoother lines
 field due to compass small
 B1 [1]
- (c) any **one** from:
 direction / strength of field
 which end is N/S / the poles of the magnet
 where field is stronger
 B1 [1]
- [Total: 6]
- 2 (a) (i) any **one** from:
 to measure a constant force
 no accelerating (force)
 to give a steady reading
 a variation in speed gives a variation in F
 B1 [1]
- (ii) any **one** from:
 have time to read meter
 easier to read the meter
 easier to keep speed constant
 B1 [1]
- (b) (i) 0.45N c.a.o. unit required
 B1
- (ii) eye position avoiding parallax marked
 e.g. above / below meter looking towards meter
 accept on top of meter
 B1 [2]
- (c)(i),(ii) axes labelled quantity and unit
 scales linear
 points plotted accurately
 best fit straight line drawn
 0.32 to 0.36
 allow ecf from graph
 B1
 B1
 B1
 B1
 B1 [5]
- (iii) weight of lower pulley
 friction of string over pulleys
 because F is not (directly) proportional to W
 B1 [1]

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(d) large triangle used on graph ($\geq \frac{1}{2}$ drawn line) and attempt at correct calculation
 0.58 to 0.64 penalise if not 2 significant figures
 allow ecf from graph

[Total: 12]

3 (a) both first bands red **and** both second bands yellow
 black, orange in third band spaces in correct order

B1
 B1 [2]

(b) (i) parallel

B1 [1]

(ii),(iii) any two correct combinations
 three correct combinations
 E marked correctly

B1
 B1
 B1 [3]

[Total: 6]

4 (a) maximum 3 marks for drawing round bottom of beaker
 equipment used stated
 how equipment used explained
 readings taken stated
 how diameter is obtained explained
 one accuracy detail

B1
 B1
 B1
 B1
 B1 [5]

(b) any **one** from:
 cannot fit ruler inside beaker
 cannot use string inside beaker
 cannot draw (internal) circle inside beaker

B1 [1]

[Total: 6]