CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

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 — B1
move compass to point to (previous) dot, new dot — B1
repeat along one line and join the dots — B1
repeat with different start points / more lines — B1 **[4]**

(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) 0.45 N c.a.o. unit required — B1

(ii) eye position avoiding parallax marked
e.g. above / below meter looking towards meter — B1 **[2]**
accept on top of meter

(c)(i),(ii) axes labelled quantity and unit — B1
scales linear — B1
points plotted accurately — B1
best fit straight line drawn — B1
0.32 to 0.36 — B1 **[5]**
allow ecf from graph

(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 (⩾½ drawn line) and attempt at correct calculation C1
0.58 to 0.64 penalise if not 2 significant figures A1 **[2]**
allow ecf from graph

[Total: 12]

3 **(a)** both first bands red **and** both second bands yellow B1
black, orange in third band spaces in correct order B1 **[2]**

(b) **(i)** parallel B1 **[1]**

(ii),(iii) any two correct combinations B1
three correct combinations B1
E marked correctly B1 **[3]**

[Total: 6]

4 **(a)** maximum 3 marks for drawing round bottom of beaker
equipment used stated B1
how equipment used explained B1
readings taken stated B1
how diameter is obtained explained B1
one accuracy detail 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]

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