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

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

CAMBRIDGE
International Examinations

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]**

(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]