

MARK SCHEME for the May/June 2011 question paper
for the guidance of teachers

0654 CO-ORDINATED SCIENCES

0654/51

Paper 5 (Practical), maximum raw mark 45

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- 1 (a) 2 readings for inhaled air ; [1]
- (b) 2 readings for exhaled air and average of 2 readings less than average of 2 readings in (a) ; [1]
- (c) (i) average for inhaled air ;
average for exhaled air ;
inhaled air = higher reading than exhaled air ; [3]
- (ii) time for atmospheric/ inhaled air longer ;
more oxygen ;
(accept reverse argument for 2 marks) (ignore references to carbon dioxide) [2]
- (iii) exhaled – cloudy and atmospheric/ inhaled – clear ;
CO₂ linked to cloudiness or to **B** ;
respiration / breathe out CO₂/ no CO₂ in **A** ; [3]
- (d) (variable) – different exercise levels ;
(control) – same person / same food / same temperature ;
(reliability) – repeats ;
(measurements) – breaths per minute ;
(equipment) – stopwatch / other equipment related to measurement of breathing rate ;
measurement of breathing rate ; [max 5]
- [Total: 15]**
- 2 (a) measurement clearly in mm ; [1]
- (b) *table*
5 sets of results ;
force correct (2.0, 3.0, 4.0, 5.0) ;
increase in length greater as goes down ;
increase in length is correct ; [4]
- (c) *graph*
axes labelled correctly ;
suitable scale ;
plotting correct for at least 4 points ; [3]
- (d) yes, with suitable explanation ; [1]
- (e) suitable straight line or curve drawn related to answer in (d) ; [1]
- (f) read correctly ; [1]

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(g) proportional (if straight line is drawn) / not proportional (if a curve is drawn) ; [1]

(h) measure length after removing weights ; [2]

(i)  ; [1]

(accept if elastic limit shown on graph)

[Total: 15]

3 (a) violet / lilac / purple ; [1]

(b) litmus goes red / litmus bleached (ignore litmus goes blue) ;
steam / water vapour / smoke / goes brown / goes yellow ; [2]

(c) (i) dissolves in cold water ;
solution pale brown / orange / yellow ; [2]

(ii) brown ppt. / orange ppt. ;
litmus red to blue ; [2]

(iii) red brown ppt. / orange ppt. ; [1]

(d) *test for chloride ion*
added silver nitrate ;
no ppt. ;

test for sulfate ion
added barium chloride ;
white ppt. ; [4]

(e) (any order)
iron(III) / Fe^{3+} / Fe (III) and valid reason ;
sulfate / SO_4^{2-} and valid reason ;
ammonium / NH_4^+ and valid reason ; [3]

[Total: 15]