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 May/June 2015 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.
1 (a) (i) (heading) solution(s) or sample + (heading) observation(s) or colour (with iodine);

(S) blue-black/black + (S and E) any acceptable colour (orange/brown/yellow);

repeats the experiment; [3]

(ii) records time as a whole number only + seconds/s/ sec(s); [1]

(iii) ref. to hydrolysis/digestion of starch; [1]

(iv) glucose/maltose; [1]

(v) (level of risk) medium or high; [1]

(b) (i) (labels under correct sequence of beakers) 0.5 + 0.25 + 0.125 + 0.0625 + %;

shows transfer of 10 cm$^3$ of solution from previous beaker to 3 beakers;

adds 10 cm$^3$ water/W to 4 beakers; [3]

(ii) 1 (heading) percentage concentration of starch solution;

2 (heading for any column/row) time + s/second(s)/ sec(s);

3 records at least 5 results for 5 different concentrations as whole numbers;

4 records 1% as faster than lowest concentration; [4]

(iii) correct answer calculated from students results; [1]

(iv) reject;

colour change fastest at 1%; [2]

(c) (i) colour change/endpoint is difficult to judge; [1]

(ii) systematic error + same syringe or random error + appropriate problem; [1]

(iii) same concentration of starch;

at least 5 different concentrations of X or fruit juice + serial or simple dilution;

add Benedict’s + heat to 80 °C/boil + record the time for first appearance of any colour change; [3]

[Total : 22]
2 (a) (i) 1 at least 3 lines + size at least 70 mm + no shading ;
   2 no cells + correct quarter drawn ;
   3 at least 5 lines drawn + one complete bulge ;
   4 at least 3 layers + epidermis drawn as double lines or trichomes drawn ;
   5 label T with label line ;

(ii) 1 quality of outer line sharp and continuous + largest cell size at least 40 mm in length + at least 4 cells ;
   2 only 4 complete cells drawn + each cell must touch another cell at least at one point to form one group ;
   3 correct proportion of cell wall to cytoplasm (thin cell walls) ;
   4 labels one cell wall ;

(b) records correct number of eyepiece graticule units ;

shows multiplication by 11 ;

correct answer + units ;

(c) (i) orientation
   (x-axis) biological molecule found in fruit + (y-axis) mass (of) biological molecule in the 35 g fruit (/) g ;

scale
   (x-axis) bars of equal width + equal distance apart + using more than half the grid + (y-axis) even scale ;

plotting
   correct plotting of each bar in the order in the table ;

line
   sharp ruled lines + labels for C, S, U, F, P directly below bar or inside bar ;

(ii) shows addition of 0.2 and 0.4 + division by 35 + multiplication by 100 ;

1.7(%) ;

[Total: 18]