



Confidential

MARK SCHEME

{6884/03}

MARKS: 40

1 (a) (i) A- 20 °C to 25 °C +
B- above 65°C; [1]

(ii) table-closed margins;
 headings;
 observations- **A** brown;
B no browning / no change /white;
C brown; [5]

(iii) to give time to the enzyme to act on the apple;
 guidance – response to focus on effect of temp on enzymes; [1]

(iv) high temperature denatures the enzyme; /
 and stops browning; / [2]

(v) control variables / control experiment; / comparison;
 to verify that change was caused by the treatment / OWTTE; [2]

(vi) enzymes are pH specific / have optimal pH;
 enzyme inactivated / denatured at extreme pH; [2]

(vii) use different fruits;
 cut / peel the fruits;
 same size of fruits / same area exposed to air;
 leave for specified time / reference to time;
 compare the area covered by brown spots; [max. 3]

(b) (i) E anytime between 10s and 75 seconds;
 F anytime between 5s and 50 seconds
Note : E should take longer time than **F** [1]

(ii) chopping increases surface area;
 more reducing sugar exposed;
 faster reaction;/less time taken for chopped piece to turn brick red; [max;3]

2 (a) (i) G- water coming out;
 H- no / little water; [2]

(ii) osmosis has occurred in G;
 higher water potential in cells than outside (where salt is sprinkled);
 water moved out;
 through partially permeable membrane;
 dissolving the salt; [max 4]

(iii) decrease in size; [1]

(iv) repeat the investigation;
 use other fruit;
 increase the sample size;/ more identical set – [max.2]

(v) outline- single clear lines with no shading;
 size- occupies at least half the space provided;
 detail- 3 layers shown and thickness of layers shown;
 seeds / description labelled; - [max. 2]

(b) (i) 73(mm); [1]

(ii) more water diffused into the potato than the other samples;
 it had a lower water potential compared to the other samples; [2]

(iii) axes- labelled with units and suitable even scale; starting from O;
 size-occupies at least half the grid;
 plot- accurate plotting; 0
 bars- have an equal widths + equal gaps between each other [4]

(iv) 70 (mm); [1]