

Name of the Student: _____

Max. Marks : 24 Marks

Time : 24 Minutes

Mark Schemes

- Q1.
- (a) guard cell
ignore stoma / stomata
1
- (b) Species A :
allow converse points for species B
- stomata open in dark / at night **or** close in light / in day
1
- stomata closed during warm(est) period **or** open when cool(er)
1
- heat (energy) /warmth increases evaporation / transpiration
must give explicit link between heat and transpiration
1
- reduces water loss / evaporation / transpiration
ignore photosynthesis
1
- [5]

Q2.

(a) any **six** from:

- hormone(s) / named produced by pancreas
- if blood glucose levels are too high, insulin is produced / released
- allowing glucose to move from the blood into the cells / named eg liver
- glucose is converted to glycogen
- if blood glucose levels fall, glucagon is produced / released
- glycogen is converted to glucose
- causing glucose to be released into the blood

6

(b) diabetes that occurs when the body (cells) do not respond / are less responsive to insulin

1

(c) (i) higher BMIs due to increase in mass / weight (relative to height) / obesity

1

obesity / being overweight / being fat is a (significant) risk factor for Type 2 diabetes
allow causes Type 2 diabetes

1

(ii) any **three** from:

- related to described change in diet eg fast foods
- and less exercise
- which increases the chance of obesity / increases BMI
- increased awareness has helped to slow the increase

3

[12]

Q3.

- (a) (concentration high) in the hepatic portal vein is blood with glucose absorbed from the intestine

1

concentration is lower in the hepatic vein because insulin

1

(has caused) glucose to be converted into glycogen

1

or

allows glucose into liver cells

- (b) (i) (after 6 hours) most of the glucose has been absorbed from the intestine **or** from food into the blood

1

- (ii) because glucagon (made in the pancreas) causes
if biological terms incorrectly spelt they must be phonetically accurate
do **not** accept glucagon made / produced by the liver

1

glycogen to be converted into glucose

1

glucose released into blood

allow the liver maintains the correct / constant level of glucose in the blood

1

[7]