Name of the Student:_____
Max. Marks : 23 Marks **Time : 23 Minutes**

Mark Schemes

Q1.

(a) (Formation of glycogen)

1. Glucose concentration in cell / liver falls below that in blood (plasma) which creates / maintains glucose concentration / diffusion gradient;

2. Glucose enters cell / leaves blood by facilitated diffusion / via carrier(protein) / channel (protein);
Not just diffusion

2

(b) 1. Insulin sensitivity similar to / not (significantly) different from those with diabetes;
No values for non-obese, so comparisons with 'normal' not possible

2. Overlap of SDs;
Accept SE

3. Their sensitivity (to insulin also) improved by GBS;

2 max

(c) 1. Sensitivity (to insulin) does increase;
This part of the question concerns spread of data, not overlap of SDs

2. But large SD / large variation (after GBS);
Accept use of figures / use of SD values to make this point.
Ignore ref to SE

3. (So) some showing no / little change / get worse;

4. Do not know what sensitivity to insulin is of non-diabetics (who are not obese);
Accept 'normal' as non-diabetic

3 max

[7]

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Q2.

(a) 1. Glucose oxidase and peroxidase;

Both enzymes required

2. Dye (with colour A);

Reject 'dye with colour B'. Ignore named dyes

2

(b) 1. Concentration is given as a range (for each colour) / measurement is not precise;

2. Only measures glucose concentration above normal / above 170 (mg 100 cm^{-3}) (in blood);

3. 170 (mg 100 cm^{-3}) is an average figure / concentration for loss to urine varies (between people);

4. Difficult to match colour against chart / colour match is subjective;

2 max

[4]

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Q3.

(a) 1. (Acetylcholine) released from / in presynaptic side;

2. Receptors in postsynaptic (side) / binds on postsynaptic (side);

2. Mark for diffusion only awarded in context of unidirectional movement.

2

(b) (i) 1. Rapid response;

2. Short duration;

Specific wording is not important. It is the principles that matter here.

Points may be made by referring to figures.

2

(ii)

	1	2	3
Percentage	80	0	0

Ignore % sign.

1

[5]

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Q4.

(a) (i) Eaten;

Containing carbohydrate / sugar;

Glucose absorbed from intestine / into blood;

Long time after insulin injection / needs more insulin / has not taken insulin;

Does not convert glucose to glycogen / glucose not taken up from blood;

2 max

(ii) Shows positive correlation / directly proportional;

A range of results for a particular value / values (for different colours) overlap;

Urine test only an arbitrary scale / not directly related to concentration / colour is subjective / few colour values;

Accept description

3

(b) Glycogen to glucose / glycogenolysis by activating enzymes;

If name incorrect this disqualifies.

Gluconeogenesis;

Allow explanation in terms of glucose from a non-carbohydrate / named non-carbohydrate source.

2

[7]

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