

GCSE Biology
Double Award Higher Level
Module B4: Topic 5
Response and Regulation
Mark Scheme

1. B1 S2014 (F) (Q7)

- | | | | |
|---------------------------|------|---|------------|
| (a) | (i) | Midday meal; smallest/ lowest {dose/ amount} of insulin (injected); NOT lowest level of glucose/ sugar/ carbohydrate in the meal | 2 |
| | (ii) | She <u>underestimated</u> the amount of glucose/sugar/carbohydrate in the meal/more glucose than she {thought/estimated/ calculated} there would be; {Injected/dose/gave} <u>too</u> little insulin; | 2 |
| (b) | | {Converts/ changes} glucose to glycogen (correct spelling); Stored/in the liver; NOT insulin stores glucose as glycogen 2 nd mark only credited if reference to glycogen | 2 |
| Question 7/2 Total | | | [6] |

2. B3 S2014 (F) (Q3)

(a) **Either order** 2
 Brain;
 Spinal cord; NOT spine

(b) (i) Automatic/ involuntary/ without thought; 1
 NOT choose to do it/ protective

(ii) 2

| Name | Purpose |
|--|---|
| Blink; | protection of eye; |
| Pupil diameter change; | Regulating/admitting (appropriate level) of light to the eye; |
| Withdrawal/ pulling away (in context); | prevents damage/ harm to body part; |
| Sneezing; | Expel/ remove substances from nose |

NOT cough/ choke

Question 3 Total **[5]**

3. (Q3) B1 W2012 (H)

(a) (i) increased (allow slower) reaction time/impaired judgement/ 1
 lose concentration/ adverse effect on nervous system
 NOT car crash/ reduces reaction time/ slows nerve impulses

(ii) effect starts even at low alcohol level 1
 NOT stops any chance of alcohol affecting the driver/ some
 People are more affected than others

(b) dependency idea/ craves/ hard to give up/ can't live without 2
 it/ keep wanting more NOT hooked
 withdrawal symptoms idea/ cold turkey

Total for the Question **4**

4. B1 S2013 (H) (Q9)

- (a) Negative feedback; NOT homeostasis 1
- (b) (i) Insulin; 1
- (ii) Glucagon; correct spelling 1
- (c) Liver; 1
- (d) (i) Use Benedicts; 2
- Boil/ heat at 80°C or above/ heat strongly;
 NOT heat unqualified/ warm/ hot
 OR
 Use clinistix/ urinalysis strips/ uristix/ multistix ;
 Dip (clinistix) into sample;

(ii) 2

| Reagent | Present | Absent |
|----------------------|--|---|
| Benedicts | brown/ orange/ reddish brown/ brick red/ brownish red/ green; NOT red unqualified/ yellow | blue/ light blue/ clear blue; NOT dark blue/ purple |
| Clinistix/ multistix | Dark blue/ purple/ dark purple; | pink/ red; |
| Uristix | Brown; | Green; |

Question 9 total [8]

5. B1W2013 (F/H) (Q10)

- (a) Heat being transported around the body via the blood; [1]
- (b) Fan increasing the rate of evaporation of sweat; [2]
- Therefore increased rate of cooling/ more heat removed from
 the {blood/ body};

Question Total [3]

6. B1 S2012 (F) (Q4)

| | | | |
|-----------------------|------|--|------------|
| (a) | (i) | 26, 48; | 1 |
| | (ii) | Plots 4 plots all correct (-1 per error) (+/- ½ small square);; Line quality; | 2 1 |
| (b) | (i) | 30 min (from graph) (units must be present); | 1 |
| | (ii) | Rise <u>and</u> then fall; | 1 |
| (c) | (i) | Insulin; | 1 |
| | (ii) | Diabetes/ diabetic; | 1 |
| Question total | | | [8] |

7. B1 S2012 (F/H) (Q3)

(a) Erector muscle; 1

(b) Indicative content:

Sweat gland

Removes {sweat / water and salts} from blood/ produces
sweat

Sweat travels up sweat duct

Through sweat pore onto surface of skin

{ Water in sweat evaporates / accept sweat evaporates
Removing heat

The order of these two statements can be reversed as shown

below:

{ Heat is removed from the body to
Evaporate the water in sweat / accept to evaporate the
sweat