



**CHEMISTRY ONLINE**  
— **TUITION** —

Phone: +442081445350

[www.chemistryonlinetuition.com](http://www.chemistryonlinetuition.com)

Email: [asherrana@chemistryonlinetuition.com](mailto:asherrana@chemistryonlinetuition.com)

# BIOLOGY

## ORGANISMS RESPOND TO CHANGES IN ENVIRONMENTS

Level & Board	AQA (A-LEVEL)
TOPIC:	CONTROLE OF BLOOD GLUCOSE
PAPER TYPE:	SOLUTION - 3
TOTAL QUESTIONS	5
TOTAL MARKS	18

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## Control of Blood Glucose - 3

1.

(a)

Diabetics have blood glucose concentration greater than  $140 \text{ mg cm}^{-3}$  / than her estimate / estimate suggests she is pre-diabetic;

Colour change is subjective / blood on test strip masks colour change;

Concentration given as a range / estimation is not reliable;

May not have fasted;

May not have had a drink with 75 g glucose

Only one test carried out.

2.

(a)

Adenylate cyclase activated / cAMP produced / second messenger produced.

Activates enzymes in cell so glycogenolysis / gluconeogenesis occurs / glycogenesis inhibited.

3.

(a) Allows time for blood glucose level to return to normal.

(b) Type 2 diabetes is a failure to respond to insulin / still produces insulin / is not insulin-dependent.

(c)

Avoids injections / pain of injections

Longer lasting / permanent / new cells will contain / express gene

Ignore references to methodology e.g. sample size not known

Less need to measure blood sugar / avoids the highs and lows in blood sugar.

Less restriction on diet

## **Against**

Rats are different to humans

May have side effects on humans

virus may be harmful / disrupt genes / cause cancer

Longer term effects of treatment not known / may have caused effects after 8 months

Substitute insulin may be rejected by the body.

**4.**

**(a)**

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.

**(b)**

Shows positive correlation / directly proportional;

A range of results for a particular value for different colours overlap

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

**5.**

**(a)**

Glycogen to glucose / glycogenolysis by activating enzymes

Gluconeogenesis.

I am Sorry !!!!!



**DR. ASHAR RANA**  
M.B.B.S / MS. CHEMISTRY



- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
- Tutoring students in UK and worldwide since 2008
- CIE & EDEXCEL Examiner since 2015
- Chemistry, Physics, Math's and Biology Tutor

## CONTACT INFORMATION FOR CHEMISTRY ONLINE TUITION

- UK Contact: 02081445350
- International Phone/WhatsApp: 00442081445350
- Website: [www.chemistryonlinetuition.com](http://www.chemistryonlinetuition.com)
- Email: [asherrana@chemistryonlinetuition.com](mailto:asherrana@chemistryonlinetuition.com)

Address: 210-Old Brompton Road, London SW5 OBS, UK