

B11- Hormonal Coordination Exam Practice 2




Name:

Score:

Q1.

Contraceptives are used to prevent pregnancy.

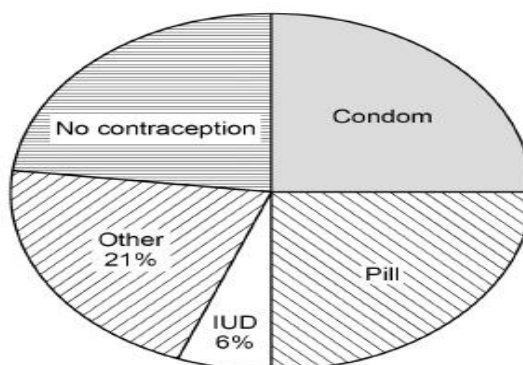
(a) Draw **one** line from each contraceptive to the method of preventing pregnancy.

Contraceptive device	Method of preventing pregnancy
	<p>Contains hormones to stop eggs maturing</p>
	<p>Prevents the sperm reaching the egg</p>
	<p>Kills sperm</p>
	<p>Slows down sperm production</p>
	<p>Stops an embryo implanting in the uterus</p>

(3)

The pie chart shows the percentages of people who used different types of contraception in the UK in 2016.

The people are aged 16–49 years.



(b) Determine the percentage of people who used no contraception.

Percentage of people = _____ %

(2)

(c) Suggest **two** reasons why a person aged 16–49 years might **not** be using contraception.

1. _____

2. _____

(2)

The table shows some information about three methods of contraception.

Method	Effectiveness	Other information
Combined pill	99.5%	<ul style="list-style-type: none">• Must be taken every day• Free from your GP or sexual health clinic• May cause headaches
Male condom	98.0%	<ul style="list-style-type: none">• May split or leak• Only used when you have sexual intercourse• Inexpensive in supermarkets or free from a sexual health clinic
Sterilisation	100.0%	<ul style="list-style-type: none">• Needs an operation in hospital• Usually cannot be reversed

- (d) A man and a woman plan to start a family in 5 years' time.

Compare the risks and benefits for this couple of the three methods of contraception.

(4)
(Total 11 marks)

Q2.

Blood sugar levels in the body are controlled by insulin.

- (a) How does insulin travel around the body?

(1)

- (b) The table below shows the blood sugar levels for two people after eating a meal.

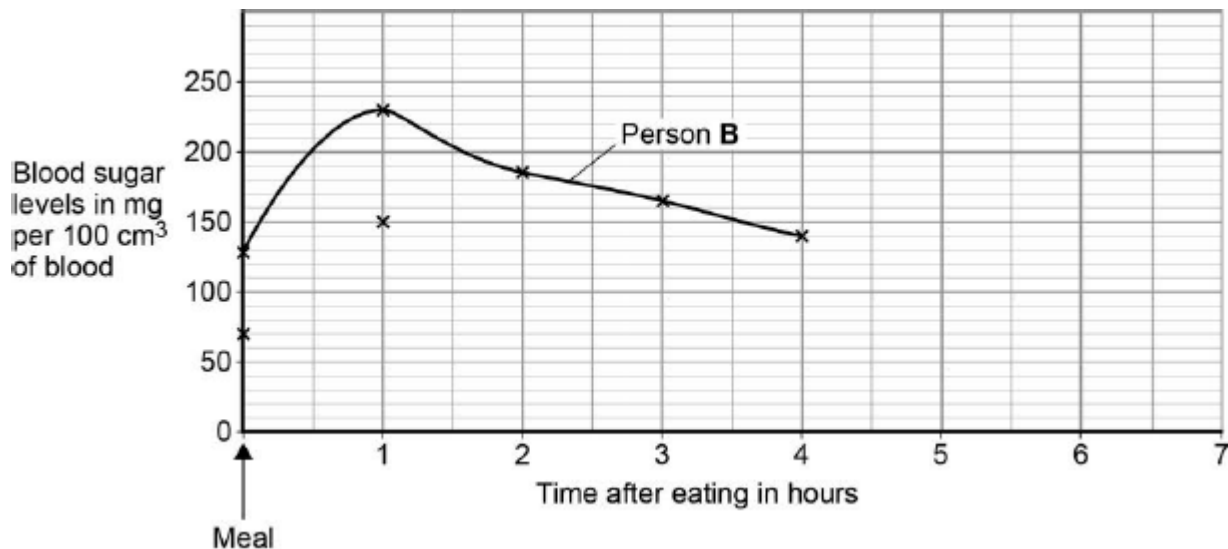
Time after eating in hours	Blood sugar levels in mg per 100 cm ³ of blood	
	Person A	Person B
0	70	130
1	150	230
2	90	185
3	80	165
4	75	140

Use data from the table above to complete the graph in the figure below.

Plot the points for person **A**.

The first two points have been plotted for you.

Draw a line through all the points.



(3)

- (c) How long after the meal is person **B**'s insulin production at its peak?

(1)

- (d) What is the greatest **decrease** in the blood sugar level of person **B** in an hour?

Decrease = _____ mg per 100 cm³

(2)

- (e) Estimate how long after eating the meal it will take for person **B**'s blood sugar level to return to the level before the meal.

Show your working on the figure above.

(2)

(Total 9 marks)

Higher Tier Questions

Q3.

The pancreas is involved in digestion and controlling the internal conditions of the body.

(a) Name **two** digestive enzymes produced by the pancreas.

1. _____

2. _____

(2)

(b) Diabetes may be caused by a lack of insulin.

Part of the treatment for someone with diabetes is to pay careful attention to the diet.

(i) Give **one** symptom of diabetes.

(1)

(ii) Give **one** way in which a diabetic may be advised to change their diet.

(1)

(iii) How does this change in diet help the diabetic?

(1)

(iv) State **one** other way in which the symptoms of diabetes may be treated.

(1)

(c) Many of the cells in the pancreas contain large numbers of ribosomes.

What is the function of ribosomes in a cell?

(1)

(Total 7 marks)

Q4.

Hormones are released from glands.

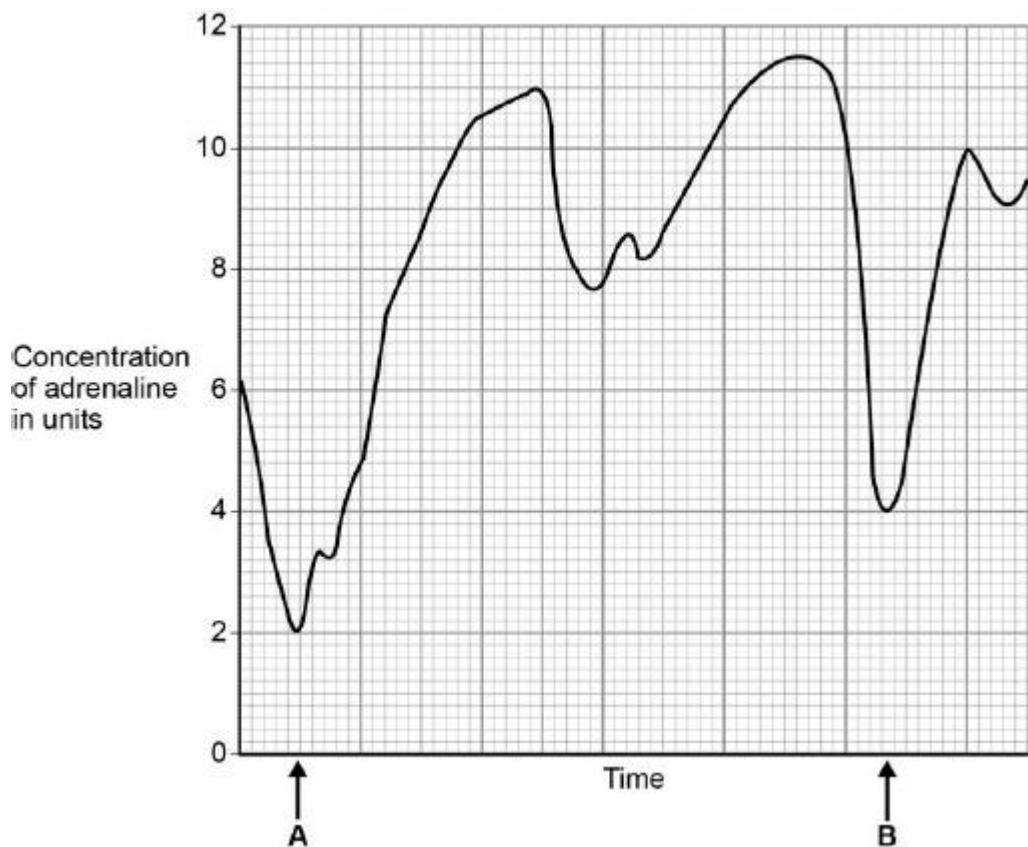
- (a) Which gland produces hormones to control other glands in the endocrine system?

Tick **one** box.

- Adrenal
- Ovary
- Pituitary
- Thyroid

(1)

- (b) The figure below shows the level of adrenaline in a man's bloodstream while he was watching a 12-minute film.



Calculate the percentage increase in adrenaline after point **B**.

Percentage increase in adrenaline = _____

(2)

- (c) Suggest why the percentage increase in adrenaline after point **B** is different from the percentage increase after point **A**.

(2)

- (d) Adrenaline causes changes in the body to prepare for a 'fight or flight' response.

What changes in the man's body are caused by adrenaline?

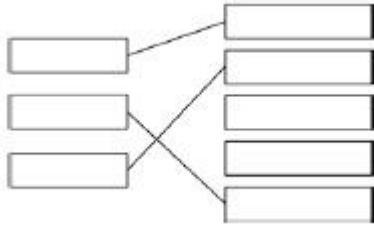
(2)

(Total 7 marks)

Mark schemes

Q1.

(a)



1
1
1

(b) 23%

allow 1 mark for evidence of pill + condom = 180°/50%

2

(c) any **two** from:

- want to have a baby
- not having sex
- past the menopause
- pregnant

allow any sensible reason

2

(d)

Level 2: Scientifically relevant features are identified; the way(s) in which they are similar/different is made clear and (where appropriate) the magnitude of the similarity/difference is noted.	3-4
Level 1: Relevant features are identified and differences noted.	1-2
No relevant content	0
Indicative content combined pill <ul style="list-style-type: none"> • A – easy to take, very effective and free on NHS, but • D – it can cause headaches/side effects, must remember to take it every day condom <ul style="list-style-type: none"> • A – only need it when you have sex, no side effects, very inexpensive, but • D – it is not as reliable, more difficult to use 	

sterilisation <ul style="list-style-type: none"> • A – 100% effective but • D – probably will not be able to have a family, risks of surgery 	
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4

[11]

Q2.

- (a) in the blood(stream)
allow plasma
ignore dissolved or in solution 1
- (b) all three plots correct
accept two correct plots for 1 mark 2
- suitable line drawn 1
- (c) 1 hour 1
- (d) 230–185
identification of steepest part of graph and correct readings taken 1
- = 45 1
- (e) line on graph showing extrapolation for person **B**
correct value read from graph (at 130 mg per 100 cm³)
allow 1 mark for a value of 4.5–5 hours if no extrapolation shown 2

[9]

Higher Tier Mark Scheme

Q3.

- (a) any **two** from:
- amylase / carbohydrase
 - protease
allow trypsin
 - lipase

2

- (b) (i) high / above normal blood sugar
or cannot control blood sugar
allow other symptoms
*eg frequent / plentiful urination **or** sugar in urine **or** thirst **or** weight loss **or** coma*
ignore consequential effects eg blood pressure / circulation / glaucoma / tiredness 1
- (ii) any **one** from:
 • small / regular meals
 • low sugar (meals) or low GI / GL **or** carbohydrates as starch
allow high fibre
ignore reference to low carbohydrate 1
- (iii) any **one** from:
 • keep constant(blood) sugar **or** prevent high (blood) sugar
or reduces surge / rush of sugar into blood
 • reduce the need for insulin 1
- (iv) (take) insulin
allow pancreas transplant 1
- (c) protein / hormone / enzyme synthesis **or** synthesis of named example
or combine amino acids 1
- [7]

Q4.

- (a) Pituitary 1
- (b) $\frac{10-4}{4}$ **or** $\frac{6}{4}$
 = 150 (%) 1
- (c) the level in the blood is already higher than it was before point **A** 1
 levels hadn't returned to normal yet (before the next scare)
allow he had already been scared so he was expecting the second scare 1
- (d) increased oxygen to brain / muscles 1

increased glucose to brain / muscles

1

[7]