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Name: _____ **MEMO** _____ Teacher's Initials: _____

- Write your name and teacher's initials in the spaces above.
- This standardised test consists of 8 pages – make sure your test is complete.
- Answer all questions on the sheet and use the mark allocation to guide you.

Question 1

1.1 Select the term in Column B that best matches the description in Column A. Write the letter of the term in the corresponding space provided between the brackets. Each letter may be used only once.

Column A

Column B

- | | |
|--|-------------------|
| [B✓] The name given to a gland that releases its product via a duct into the bloodstream. | A Aldosterone |
| [D✓] Specialised cells in the IOL responsible for the release of insulin. | B Endocrine gland |
| [E✓] Acts on the collecting ducts of the kidney. | C Goitre |
| [C✓] Associated with the over-secretion of thyroxin. | D Beta cells |
| [I✓] Released in response to TSH. | E ADH |
| [F✓] Collective term referring to ovaries and testes. | F Gonads |
| [K✓] A hormone that promotes the development of secondary sex characteristics in males. | G Progesterone |
| | H Exocrine gland |
| | I Thyroxin |
| | J LH |
| | K Testosterone |
| | L Hypothyroidism |
| | M Follicles |

- 1.2 For each of the questions 1.2.1 to 1.2.5 choose the correct answer (A, B, C or D). Only write the letter in the box below.

Question	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5
Answer	D✓	B✓	B✓	D✓	C✓

[5]

- 1.2.1 Which line in the table below demonstrates a correct cause and effect relationship?

	Cause	Effect
A	Excessive GH	dwarfism
B	Excessive insulin	hyperglycaemia
C	Lack of GH	gigantism
D	Lack of insulin	hyperglycaemia

(1)

- 1.2.2 Which of the following is NOT secreted by the pituitary gland?

- A. Luteinising hormone
- B. Glucagon
- C. Follicle stimulating hormone
- D. Oxytocin

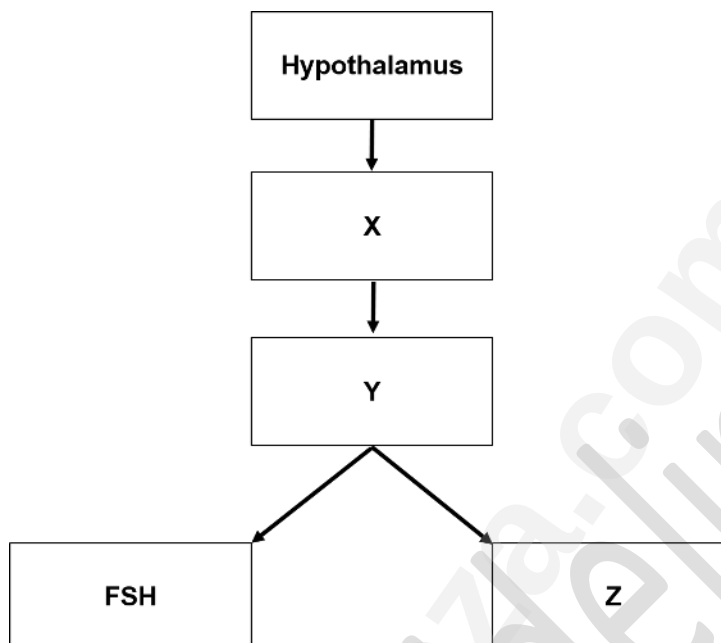
(1)

- 1.2.3 Which of the following is NOT true of hormones?

- A. Chemical messengers.
- B. Required in large amounts.
- C. Act on specific target organs.
- D. Released directly into the bloodstream.

(1)

1.2.4 Which line in the table below correctly matches the release of a specific hormone from the hypothalamus, as shown the image below?



	X	Y	Z
A	ADH	Anterior Pituitary	LH
B	GnRH	Posterior Pituitary	LH
C	LH	Posterior Pituitary	GnRH
D	GnRH	Anterior Pituitary	LH

(1)

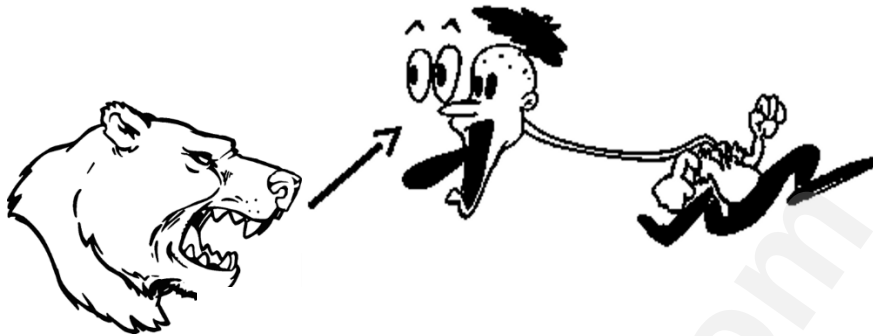
1.2.5 Which of the following is associated with Type I diabetes?

- A. Insulin dependent, late (adult) onset
- B. Insulin independent, early (child) onset
- C. Insulin dependent, early (child) onset
- D. Insulin independent, late (adult) onset

(1)

Question 2

2.1 Study the cartoon below and answer the questions that follow.



2.1.1 The cartoon above shows some responses to a stimulus. Give any THREE responses that are likely to have occurred in the human. (3)

Any three of the following:

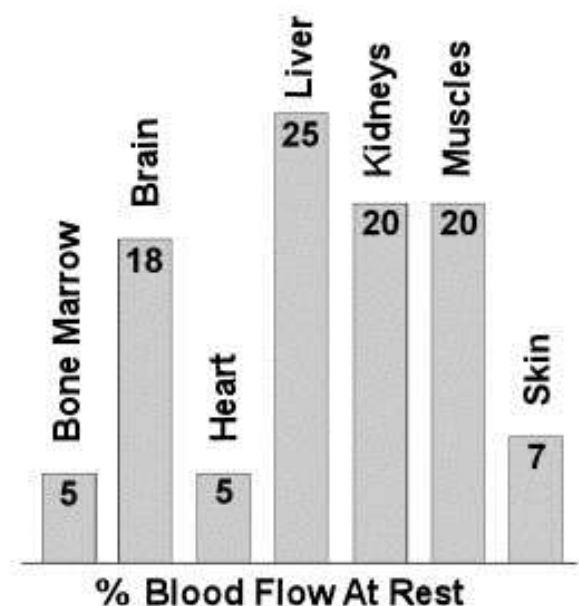
- increased blood pressure✓
- increased heart rate✓
- pupil dilation✓
- increased sweating✓
- increased muscle tone✓
- running away/fear✓

2.1.2 Provide the name of the hormone that is likely to have been released in this situation.

adrenaline✓

(1)

2.2 The graph below shows the percentage (%) of blood flow to various organs around the body at rest.



Source: <https://www.teachpe.com/anatomy-physiology/the-circulatory-system/blood-flow-blood-pressure>

- 2.2.1 Tabulate the information from the graph in the space provided below. Place the organs in *ascending order* with respect to percentage blood flow. No heading required. (8)

pencil border✓

correct data represented in table✓✓

independent variable on left✓

ascending order1✓

Organ✓	Percentage✓ blood flow at rest✓
Bone marrow	5
Heart	5
Skin	7
Brain	18
Kidneys	20
Muscles	20
Liver	25

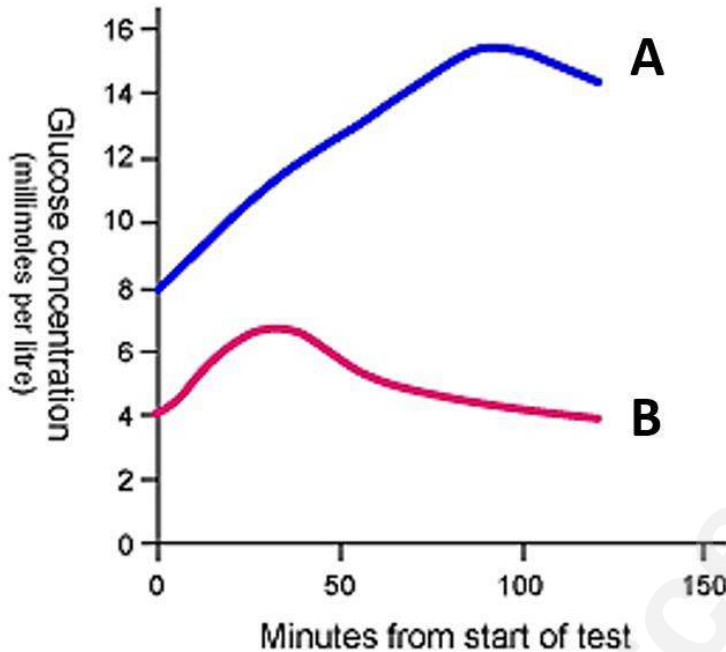
- 2.2.2 With each beat, the heart pumps approximately 75 milliliters of blood around the body. With reference to the percentages given in the graph for the *brain*, calculate how much blood is pumped to the brain at rest with each beat. (2)

18% of 75 ml✓ = 13.5 ml✓ (no unit, no mark, even if correct answer given)

[14]

Question 3

- 3.1 A study was conducted to investigate the blood sugar levels of healthy and diabetic individuals. Two participant's blood glucose levels were tested. They were given a high carbohydrate meal, after which their blood glucose levels were monitored for a period of two hours. Study the graph below and answer the questions that follow.



(Source: <https://235.stem.org.uk/Diabetes/diabetes/diabetes4.html>)

- 3.1.1 Identify which curve represents a 'normal' individual and which represents a diabetic individual:

A: diabetic✓

B: normal✓

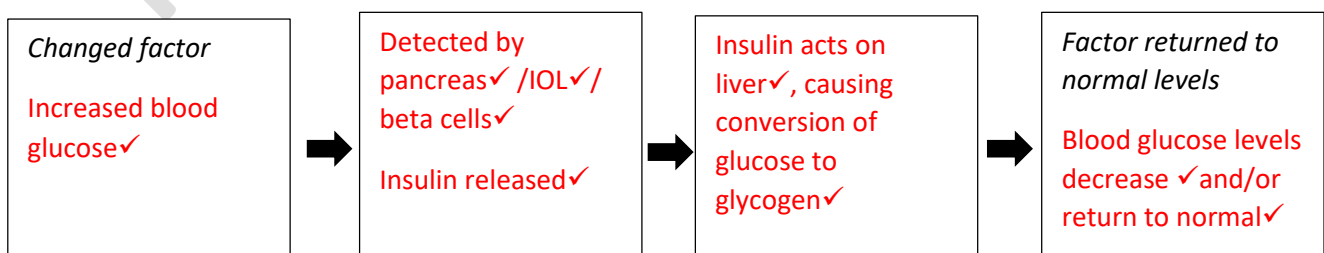
(2)

- 3.1.2 Provide a reason for your choice in 3.1.1.

Blood glucose levels of A do not return to normal✓ after carbohydrate meal eaten

(1)

- 3.1.3 Draw a flow chart in the boxes provided below to indicate the sequence of events occurring in individual B, making reference to all relevant *endocrine glands*, *hormones released* and *associated responses* following the conditions in individual B (as shown in graph). (6)



3.1.4 Based on the information provided, do you think the experiment carried out was a *fair test*?

Provide a reason for your choice.

(2)

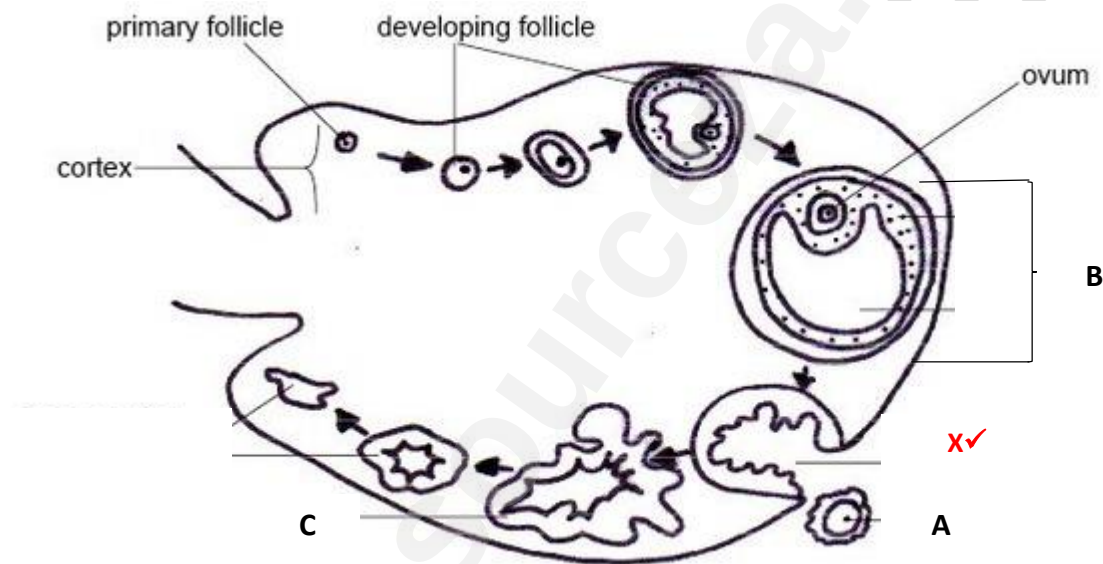
Yes – test duration the same for each person/same meal provided✓

No – resting/starting glucose levels not the same/no idea of previous meals consumed✓

[11]

Question 4

Study the diagram below of part of the female reproductive system and answer the questions that follow:



4.1 Provide labels for parts **A**, **B** and **C**

(3)

A secondary oocyte/egg/ovum✓

B Graafian follicle✓

C corpus luteum✓

4.2 Provide a descriptive heading for the diagram.

(3)

Diagram showing the events in the female ovary✓/development of the ovum✓ in the ovary over 28 days✓/during the menstrual cycle✓ (max 3)

- 4.3 The table below relates to various hormones released from parts A to C. Complete the table by filling in 4.3.1 to 4.3.3. (3)

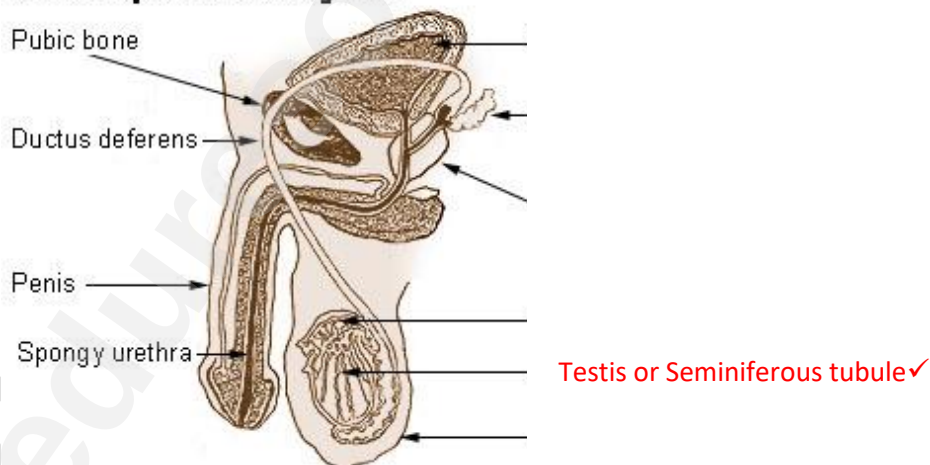
Hormone	Released by	Acts on	Response
4.3.1 GnRH✓	Hypothalamus	Anterior pituitary	Release of FSH
Oestrogen	B	Uterus	4.3.2 Repair of uterine lining/endometrium✓
4.3.3 Progesterone✓	C	Uterus	Maintenance of endometrium

- 4.4 Place an X on the diagram above at the site of *ovulation*. (on diagram) (1)

- 4.5 The diagram below shows the male reproductive system.

- 4.5.1 Provide the name of the part of the male reproductive system associated with *sperm production* and label this on the diagram below. (1)

Male Reproductive System



- 4.5.2 Describe two ways in which the structure of a mature sperm allows it to swim to and fertilize the egg. (2)

Tail provides mobility✓, acrosome with digestive enzymes to break down membrane/jelly layer around egg✓, spiral mitochondrion – ATP for motility✓