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tutors**

Student number

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Name _____

Date _____

Attempt/Time taken _____

GCSE BIOLOGY

Topic Paper: 5 Homeostasis and response
Part 2

Time allowed: 40 minutes

Materials

For this paper you must have:

- the Periodic Table/Data Sheet, provided as an insert (enclosed)
- a ruler with millimetre measurements
- a calculator, which you are expected to use where appropriate.

Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- All working must be shown.
- Do all rough work in this book. Cross through any work you do not want to be marked.

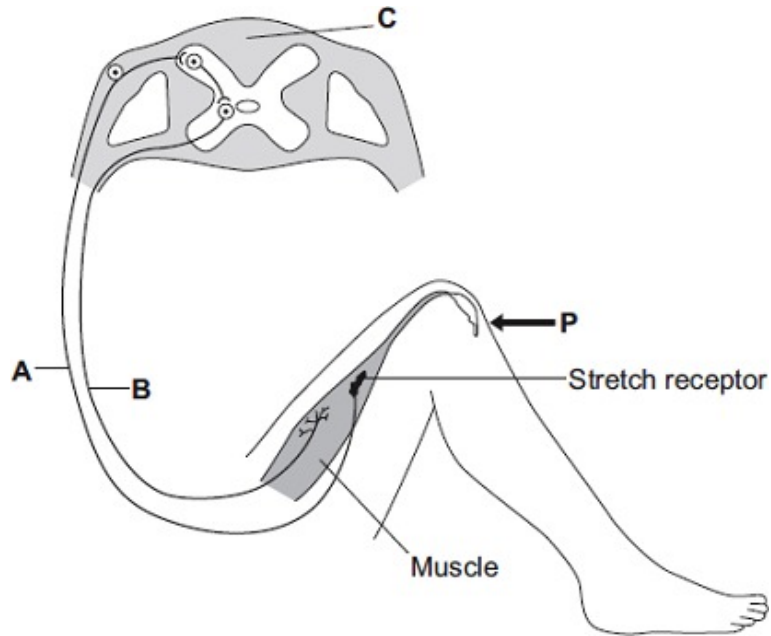
Information

- The Periodic Table/Data Sheet is provided as in insert.
- You are reminded of the need for good English and clear presentation in your answers.
- When answering questions you need to make sure that your answer:
 - is clear, logical, sensibly structured
 - fully meets the requirements of the question
 - shows that each separate point or step supports the overall answer.



34 Marks

Q7. The diagram shows the structures involved in the knee-jerk reflex. When the person is hit at point **P**, the lower leg is suddenly raised.



(a) Name the structures labelled **A**, **B** and **C**.

A

B

C

(3)

(b) How is information passed across a synapse?

.....

.....

(1)

(c) What is the effector in this response?

.....

(1)

(Total 5 marks)

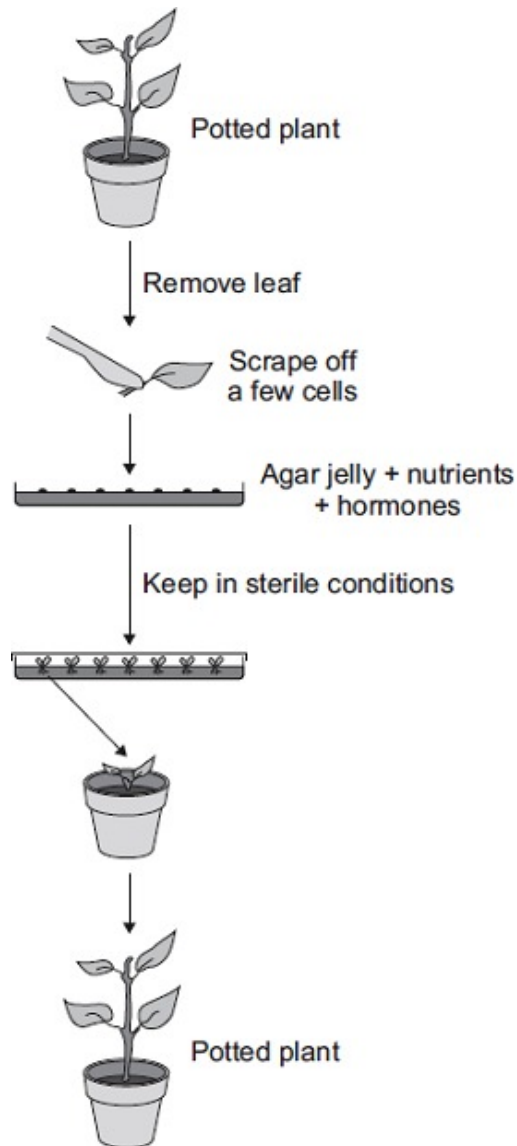
Q8. Plant hormones are used in horticulture.

(a) Name **one** plant hormone.

.....

(1)

(b) The diagram shows how new plants are produced using tissue culture.



(i) Tissue culture is a type of *asexual reproduction* .

Give the main features of *asexual reproduction* .

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(3)



(ii) Another method of producing new plants is by taking cuttings.

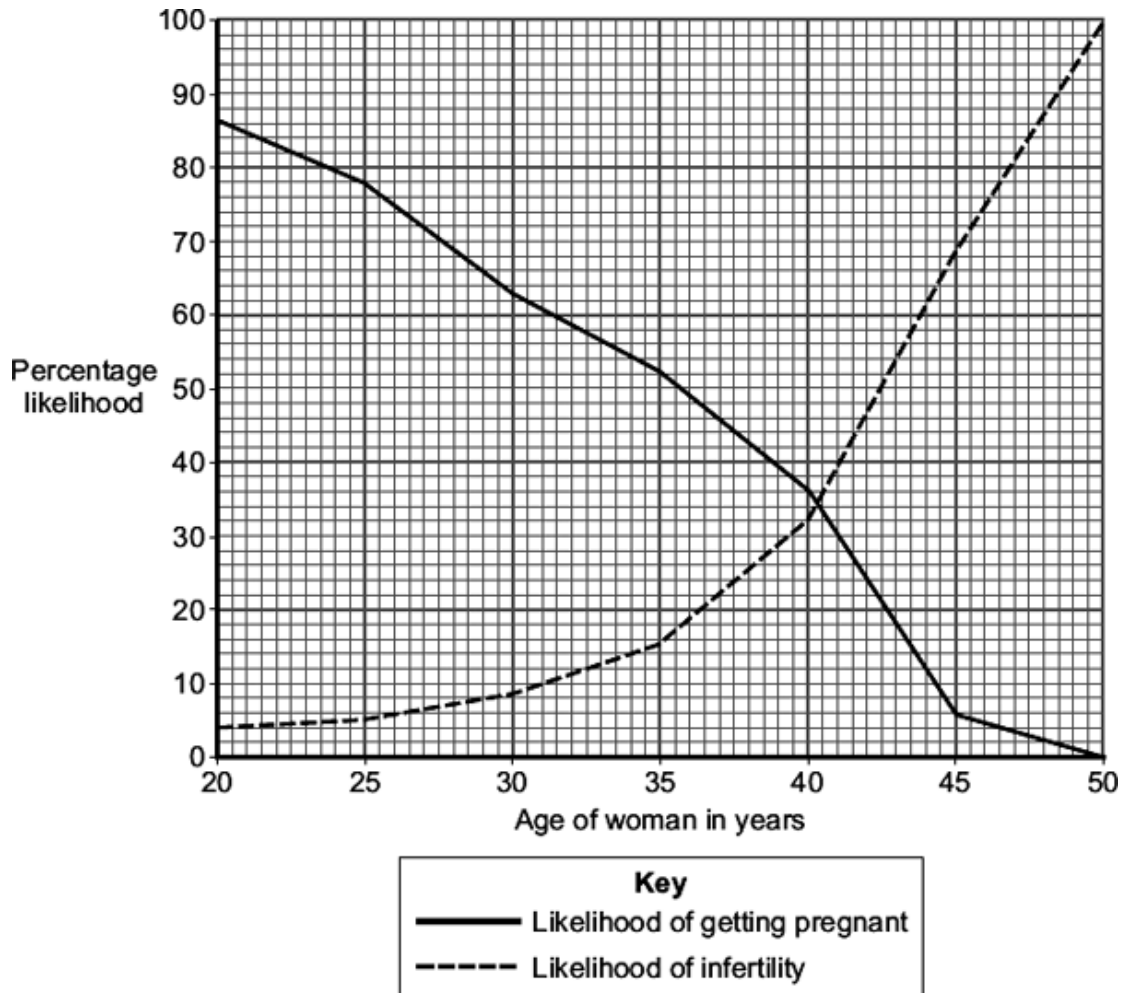
Suggest **one** advantage of using tissue culture and **not** using cuttings to produce plants.

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(1)
(Total 5 marks)

Q9. The graph shows how the likelihood of getting pregnant and the likelihood of infertility change with a woman's age.

The data is for healthy women who have unprotected sexual intercourse during one year.



(a) Use information from the graph to answer this question.

A woman in her mid-twenties is thinking about waiting until her late-thirties before she has children.

A doctor advises the woman not to wait.

Explain why the doctor gives this advice.

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(2)

(b) The hormones FSH and LH are used in fertility treatment.

Give the function in fertility treatment of:

(i) FSH

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(1)

(ii) LH.

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(1)

(c) In the first stage of in-vitro fertilisation (IVF), eggs from the mother are fertilised with sperm from the father.

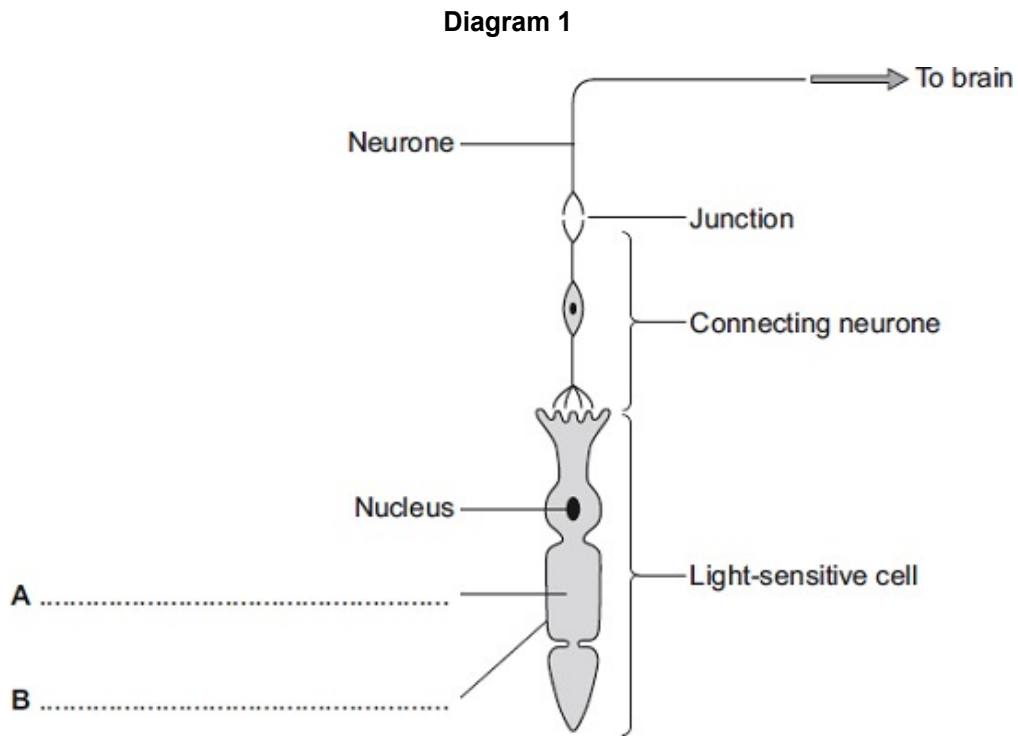
Describe the next stages of IVF.

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(2)

(Total 6 marks)

Q10. Diagram 1 shows cells from the light-sensitive layer in the eye.



(a) On **Diagram 1**, add labels to name part **A** and part **B** of the light-sensitive cell. (2)

(b) There is a junction between the connecting neurone and the neurone carrying the impulse to the brain.

(i) What name is given to the junction?

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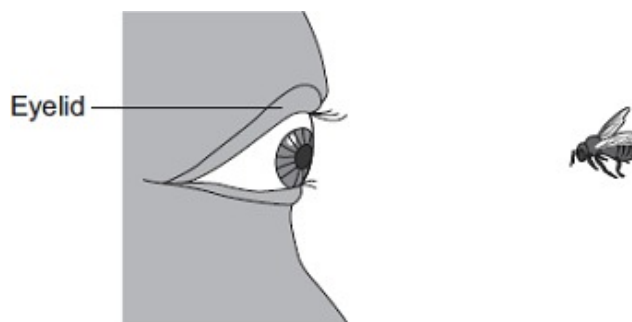
(1)

(ii) In what form is information passed across the junction?

.....
.....

(1)

(c) Diagram 2 shows a bee flying towards a man's eye.



In the *blink reflex*, light from the bee reaches the light-sensitive cell in the eye. The muscles in the eyelid shut the man's eye before the bee hits the eye.



Describe the pathway taken by the nerve impulse in the *blink reflex*.

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(4)
(Total 8 marks)

Questions continue on the following page



Q12. The human body produces many hormones.

(a) (i) What is a *hormone*?

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.....

(1)

(ii) Name an organ that produces a hormone.

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(1)

(iii) How are hormones transported to their target organs?

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(1)

(b) Describe how the hormones FSH, oestrogen and LH are involved in the control of the menstrual cycle.

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(3)

(Total 6 marks)