

(c) What happens to the amount of sweat produced as the temperature rises? Explain the observation. (3 marks)

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(d) Explain the observation made on the amount of urine produced as the temperature increases. (3 marks)

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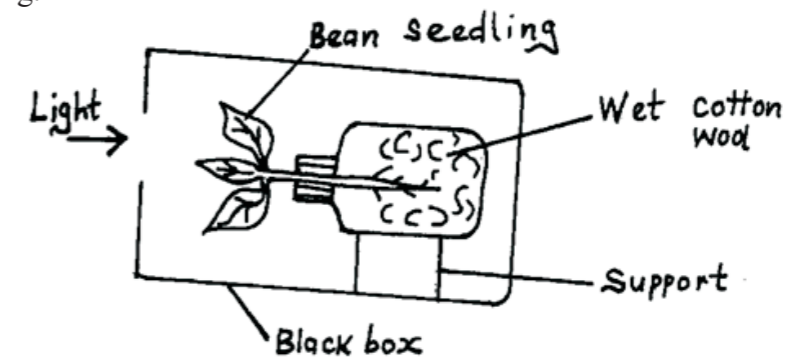
b) Describe briefly how the impulse transmission occurs through the structures in the diagram (3 marks)

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c) State three differences between simple and conditioned reflex actions. (3 marks)

Simple reflex	Conditioned reflex
i)	i)
ii)	ii)
iii)	iii)

3. The diagram below represents an experimental set up to investigate effects of gravity and light on the growing seedling.



a) (i) Draw a diagram of the seedling to experiment the expected results after three days. (2 marks)

(ii) Explain the appearance of the seedling in a (i) above. (4 marks)

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b) Suggest a control experiment for the gravity in this experiment. (1 mark)

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c) State **one** importance of the type of response shown in the experiment above. (1 mark)

4. Haemophilia is due to a recessive gene located on the X- chromosome. A phenotypically normal male married a normal female and one of sons was a haemophiliac.

(a) **Work out** the genotype of the other children
(Use letter **H** to denote the gene for normal blood clotting). (4 marks)

(a) **Explain** why in a human population there will be more cases of Haemophilia in males than females. (2marks)

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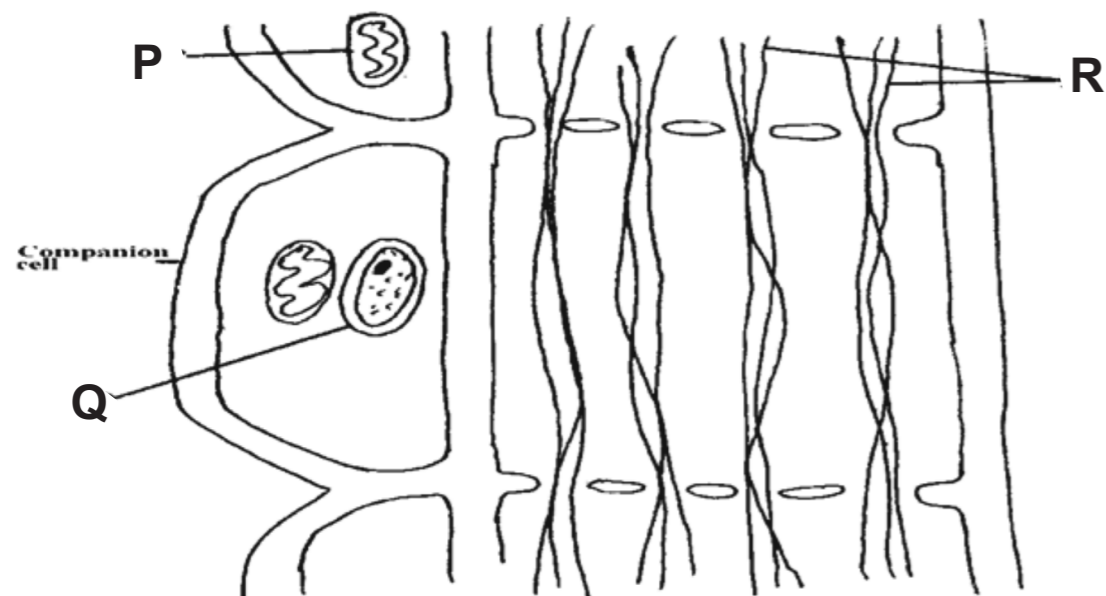
(b) Apart from Haemophilia, **name one** other genetic disorder of human blood caused by gene mutation (1 mark)

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(c) **State** the importance of vitamin K in blood clotting. (1 mark)

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5. The diagram below represents part of a phloem tissue.



(a) **Name** the structures labelled P, Q, and R (3 marks)

P

Q

R

(b) **State** the function of the phloem tissue. (1 mark)

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(c) (i) **State** how the functioning of the phloem tissue is affected if the companion cell is destroyed. (1 mark)

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(ii) **Give** a reason for your answer. (1 mark)

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(d) **State two** structural differences between phloem and xylem tissues. (2 marks)

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SECTION B (40 MARKS)

Answer question 6 (compulsory) and either question 7 or 8 in the space provide after question 8

6. The table **below** shows how the quantities of sweat and urine vary with external temperature.

External temperature °C	Urine cm ³ /hr	Sweat cm ³ /hr
0	100	5
5	90	6
10	80	10
15	70	20
20	60	30
25	50	60
30	40	120
35	30	200

(a) On the same graph, plot the quantities of urine and sweat produced against the external temperature. (7 marks)

(b) At what temperature is the amounts of sweat and urine produced equal? (1 mark)

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