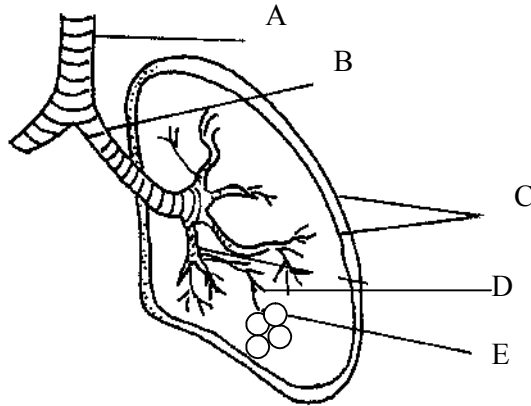


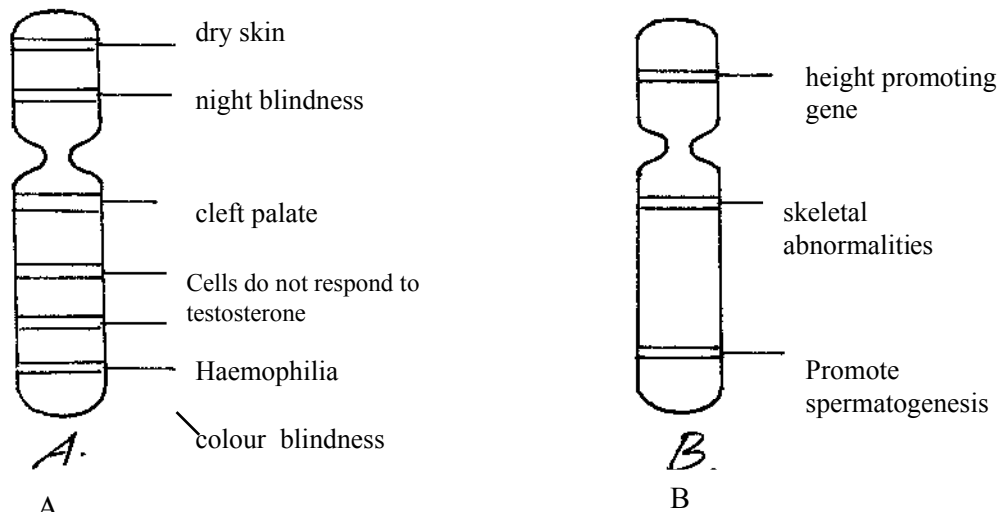
231 / 2

Answer all questions in the spaces provided.

1. Study the diagram below and answer the questions that follow.

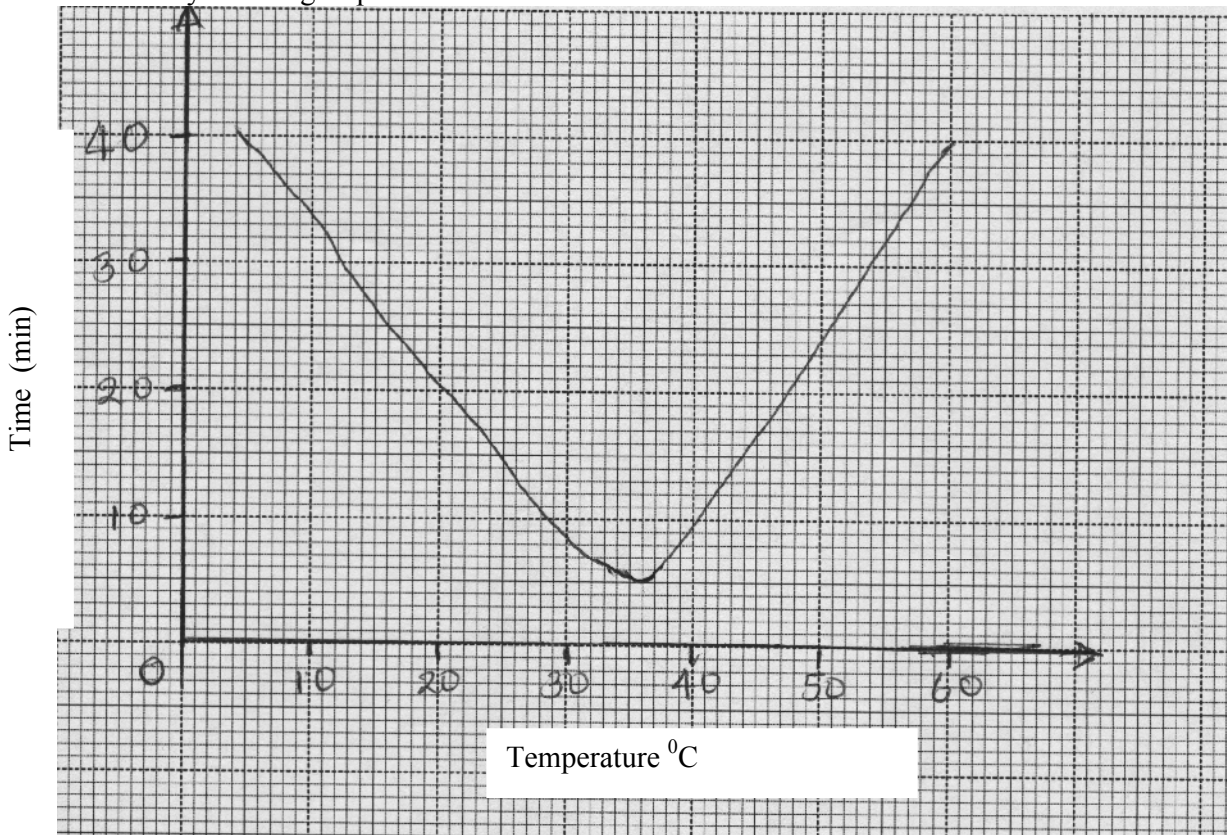


- a) Name the parts labeled A,B,C, and D. 2mks\*BND\*
  - b) State the function of the fluid found between the parts marked C. 1mk\*BND\*
  - c) How is the part labeled E adapted to its function. 4mks\*BND\*
  - d) State the significance of rings of cartilage found around the part marked A and B. 1mk\*BND\*
- 2.
- a) State three functions of cerebrum. 3mks\*BND\*
  - b) (i) Name the fluid found in the cavities of the brain: 1mk\*BND\*  
 (ii) State the function of the fluid named in b(i) above; 1mk\*BND\*  
 (iii) In which layer of the meninges do we, find the fluid named in b(i) above. 1mk\*BND\*  
 iv) State two other components of the meninges and describe their location. 2mks\*BND\*
- 3.
- a) In a certain family with two children, one child was of blood group A while the other is blood group O. Work out the genotype of the two children, if the mother is blood group B and the father is blood group A. 3mks\*BND\*
  - b) Below is a drawing of chromosomes of human and the genes located on it. Use the drawing to answer the questions that follow.



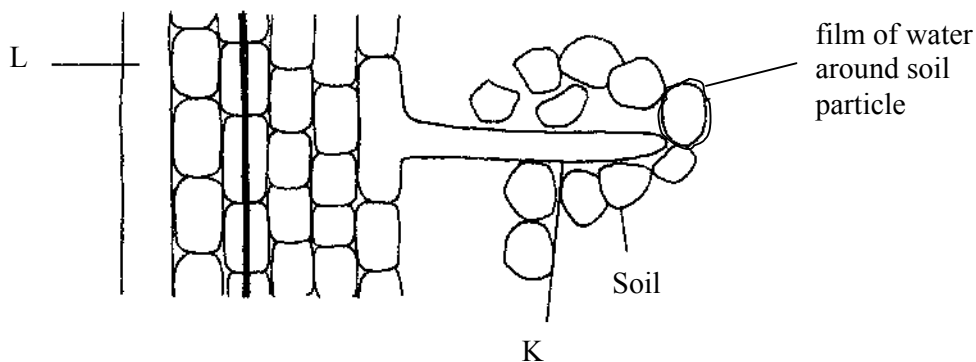
- i) Identify chromosome A. 1mk\*BND\*

- ii) Suggest an advantage of the smaller chromosome B and the lack of sharing the allelic genes with A. 2mks\*BND\*
- c) State two application of genetics in agriculture. 2mks\*BND\*
- 4. a) Define the term Denature. 1mk\*BND\*
- b) In an experiment to investigate the action of pepsin on egg albumen, equal amount of pepsin were added to equal amounts of egg albumen in different test-tubes. The test tubes were placed in water baths at different temperatures. The graph below shows time taken for the enzyme to digest protein in each .



- i) What is the optimum temperature for the enzyme? 1mk\*BND\*
- ii) Account for the time taken to digest egg albumen at 45°C. 1mk\*BND\*
- c) (i) In which form is the enzyme pepsin secreted. 1mk\*BND\*
- (ii) Give a reason for your answer in c (i) above. 1mk\*BND\*
- d) Name four plant tissues which lack chloroplast. 2mks\*BND\*
- e) State the function of the pad of gum in herbivorous feeding. 1mk\*BND\*

5. The diagram below represents the pathway of water from the soil into the plant.



- a) Name the structures labeled K and L. 2mks\*BND\*  
 b) Explain how water from the soil reaches the structure labeled L. 5mks\*BND\*  
 c) Name the process by which mineral salts enter into the plant. 1mk\*BND\*

**SECTION B (40 MARKS)**

**Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided.**

6. The glucose level in mg per 100ml of blood of two people A and B; who had been fasting for 12 hours was determined. The people were then fed on equal amounts of glucose and the levels of glucose determined at 30 minutes intervals for two hours. The results were as shown in the table below.

Time in Minutes	-	0	30	60	90	120
Blood Glucose (mg/100ml of blood)	A	157	184	194	187	180
	B	90	118	125	108	84

- a) Using a suitable scale, draw a graph of blood glucose (mg/100ml ) of blood against time in minutes. 8mks\*BND\*
- b) Account for the level of glucose in person B.
- (i) during the first 30 minutes. 2mks\*BND\*  
 (ii) between 60 and 120 minutes. 4mks\*BND\*  
 (c) Account for the glucose level in person A at the end of the two hours. 4mks\*BND\*
- d) If the normal glucose level in a healthy person is between 80 and 100mg per 100ml of blood, which one of the graphs represents the data for a person who is
- (i) Healthy 1mk\*BND\*  
 (ii) Severely diabetic 1mk\*BND\*
7. Explain how the following types of plants are adapted to their habitats
- (i) Xerophytes 13mks\*BND\*  
 (ii) Hydrophytes 7mks\*BND\*
8. Describe how a male reproductive system is adapted to its functions. 20mks\*BND\*

