

# FORM FOUR CLUSTER KCSE MODEL11

## BIOLOGY PAPER 2 QUESTIONS

### SECTION A (40 Marks)

#### Answer ALL questions in this section

1. In a certain plant species purple colour is dominant to gene of white colour. A pure breed plant with purple grains was crossed with a heterozygous plant. a) Using letter G to represent gene for purple color.

Work out genotypic ratio of the offspring. (5 marks)

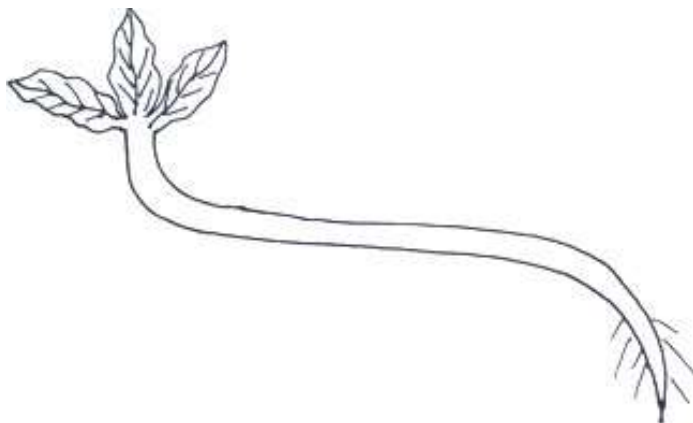
b) State the phenotype of offspring. (1 mark)

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c) Name two disorders in human caused by gene mutation. (2 marks)

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2. Below is a diagram illustrating a certain response exhibited by a plant.



a) i) Name the type of response. (1 mark)

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ii) Explain how the response named in a (i) occurs. (4 marks)

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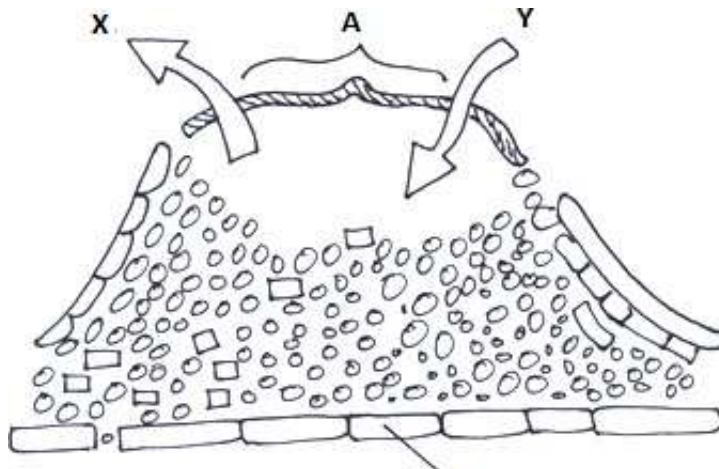
b) State the importance of negative phototaxis in termites. (2marks)

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c) Give the survival value of haptotropim in plants. (1 mark)

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3. The diagram below represents a structure used for gaseous exchange in woody plants.



a) Name the parts labeled A and B. (2 marks)

A.....  
 B.....

b) Name the gases shown by arrows X and Y. (2 marks)

X.....  
 Y.....

c) Give function of part labeled B. (1 mark)

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d) Name the physiological process occurring that result in production of gas X in plant tissues. (1 mark)

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e) How are pneumatophores adapted to their function. (2 marks)

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4. a) Explain what would happen to excess amino acids in liver of a human. (3 marks)

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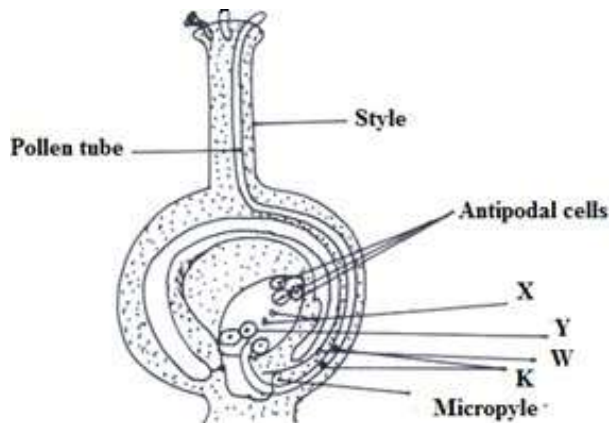
b)i) What would happen to a person if less antidiuretic hormone is produced. ( 1mark) .....

ii) What term is given to condition described in b(i) above. (1 mark)  
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c) Name the portion of human nephron found only in the cortex. (3 marks)

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5. The diagram below shows a cross section through a female part of a flower.



a) Name the structure labeled W X Y (3 marks)

W.....  
 X.....  
 Y.....

b) State two function of pollen tube. (2 marks)

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c) Name the structure labeled K and give its role. (2 marks)

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d) State what happens to antipodal cells after fertilization. (1 mark)

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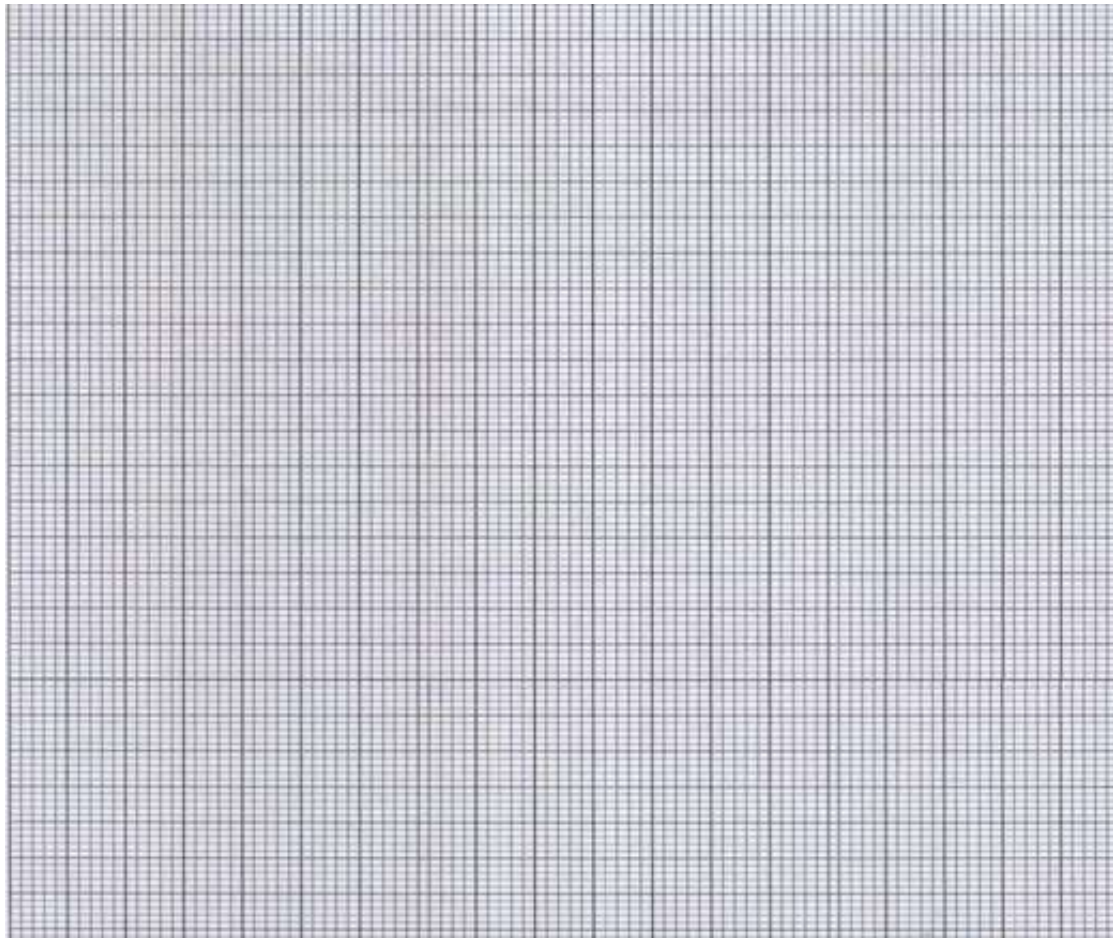
## SECTION B (40 Marks)

Answer question 6 (Compulsory) in the spaces provided and either question 7 or 8

**Volume of Carbon IV Oxide produced**

Time in hours	0	1	2	3	4	5	6
Temp in <sup>0</sup> c							
30 <sup>0</sup> c	0.0	9.0	13.0	20.0	21.5	23.0	24.0
35 <sup>0</sup> c	0.0	8.0	16.5	25.0	25.5	26.5	27.0
40 <sup>0</sup> c	0.0	12.0	23.5	28.0	26.0	18.5	10.0

a) Using the same axis plot graphs to show Carbon IV Oxide production at each temperature against time. (8 marks)



b) i) From the graph drawn, what is the probable optimum temperature for the experiment.(1 mk)

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ii) Explain your answer in b (i) above. (2 marks)

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c) Name other ways of determining rate of respiration other than rate of Carbon IV Oxide production. (2 marks)

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d) Suggest two other factors that would cause a decrease in the rate of Carbon IV Oxide production in above experiment. (2 marks)

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e) Explain the shape of graph if temperature was maintained at 40°C. (2 marks)

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f) In what ways does anaerobic respiration of glucose differ from aerobic respiration of same substance. (3 marks)

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7. Describe the role of hormones in human menstrual cycle.

8. Describe how secondary thickening occur in woody plants.

