

FORM FOUR CLUSTER KCSE MODEL8

BIOLOGY PAPER 1 QUESTION

Answer all questions

1. When is glycogen which is stored in the liver converted into glucose and released into the blood.
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2. Name three sites where gaseous exchange takes place in terrestrial plants.
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3. a) What causes the following diseases? i) Diabetes mellitus (1 mark)
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ii) Diabetes insipidus (1 mark)
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4. To estimate the population size of crabs in a certain lagoon, traps were laid at random; 400 crabs were caught marked and released back into the lagoon. Four days later, traps were laid again and crabs were caught out of the 374 crabs, 80 were found to be marked. Calculate the population size of the crabs in the lagoon.
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5. a) What is the biological importance of the larval stage during metamorphosis? (2marks)
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b) State two advantages of metamorphosis to the life of insects. (2marks)
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6. Adult elephants flap their ears twice as much as their calves in order to cool their bodies when it is hot. Explain.....
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7. a) Give a reason why light stage of photosynthesis only takes place in granum of chloroplast. (1 mark)
b) Name part of mammalian digestive system where the digestion of fats begins. (1 mark)
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8. State two functional differences between arteries and veins.
9. One can use both the nose and mouth for inhalation. Explain which is the more appropriate path of inhalation.
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10. a) What is the significance of getting rid of the lactic acid produced during anaerobic respiration in animals? (2marks)
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b) How is mitochondrion adapted to its function? (2marks)

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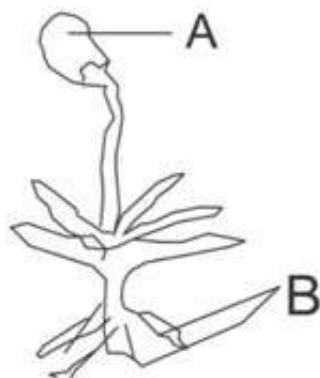
11. a) Explain how surface area and volume are related to temperature control in rats. (3marks)

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b) State two physiological changes that take place in the human skin in order to facilitate heat gain in the body. (2marks)

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12. Use the diagram of a moss plant shown to answer the questions that follow.



a) Name the parts labelled A and B.

A.....

B..... (2marks)

b) Name one morphological feature that is common to reptiles, birds and fish. (1 mark)

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.....

13. Besides the abdomen, name the other body part of members of Arachnida.

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14. How are leaves of submerged plants adapted for photosynthesis? (2marks)

15. a) What is the effect of contraction of the diaphragm muscles during breathing in mammals? (1 mark)

- b) Name two structures of gaseous exchange in aquatic plants. (2marks)

16. a) Pregnancy continues if the ovary of an expectant mother is removed after four months. Explain (2marks)

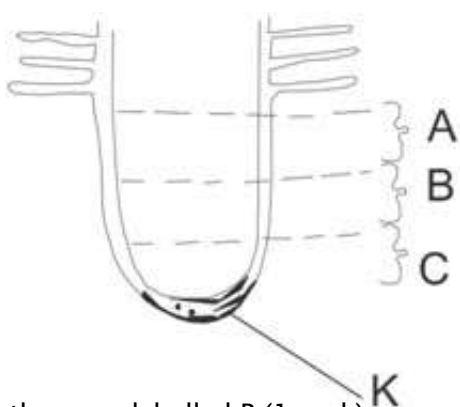
- b) What is the role of testes in the mammalian reproductive system? (1 mark)

17. a) Name the products of anaerobic respiration in i) plants (1 mark)

- ii) animals (1 mark)

- b) What is oxygen debt? (1 mark)

18. The diagram below shows regions of growth in a root. Study it and answer the questions that follow.



- a) Name the zone labelled B (1 mark)

- b) State the function of part K. (1 mark)

c) State two characteristics of cells found in zone C. (2marks)

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19. State one survival value for each of the following in plants.

a) Thigmotropism in stems (1 mark)

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b) Hydrotropism in roots (1 mark)

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20. State one use for each of the following apparatus in the study of living organisms.

a) Pooter (1 mark)

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b) Pitfall traps (1 mark)

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21. a) Name two types of chromosomal mutations (abberations) (2marks)

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b) Give an example of a sex – linked trait in humans on

i) Y – chromosome (1 mark)

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ii) X- chromosome (1 mark)

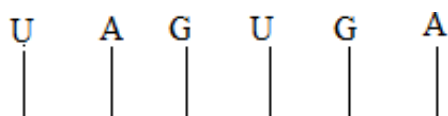
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22. Group the following characteristics either continuous variation or discontinuous variations. Blood groups, height, finger prints, skin colour and ear lobe.

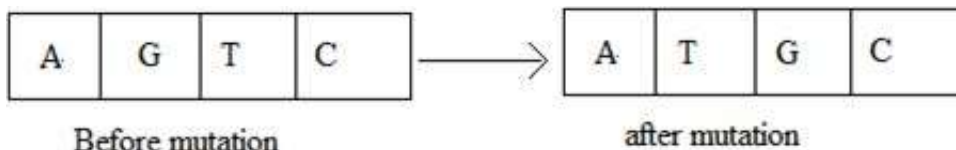
Continuous variation.....

Discontinuous variation.....

23. a) Write down the base sequence on the original DNA strand on RNA shown below was formed. (1 mark)



b) State the type of gene mutation shown below. (1 mark)



24. i) The following beaks of birds have been modified:



State the kind of evolution shown above

..... (1 mark)

ii) What is natural selection? (2marks)

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25. Which structure in the ear.

i) Balances pressure

ii) Amplifies vibrations

26. a) Work out the magnification power of the objective lens of a microscope if magnification of the eye piece lens is X10 and the total magnification of a specimen observed is X400. (2marks)

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b) State two common reagents for testing for the presence of proteins in a food substance. (2marks)

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27. a) State two functions of bile salts produced by liver.

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b) Give one function of Iron as an element in human body and deficiency disease caused?

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28. Colour blind is a sex linked genetic disorder due to a recessive gene. A man who is colour blind marries a woman who is a carrier for the condition. Using letter "C" to represent the normal condition and "c" for colour blind condition. a) Work out across between the man and the woman. (2marks)

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b) What is the probability of the couple getting (2marks)

i) A colour blind son.....

ii) A carrier daughter.....

29. Name two causes of allergic reactions.

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