NAME……. INDEX

NO……..

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SIGNATURE……..

DATE……..

231/1

BIOLOGY

PAPER 1

1¾ HOURS

FORM FOUR LAICOMET 2010

231/1

BIOLOGY

PAPER 1

INSTRUCTION TO CANDIDATES:

- Write your name and index number in the spaces provided at the top of this page. Sign and write the date o examination in the spaces provided
- Answer all questions
- Answer must be written in the spaces provided in the questions paper
- Additional paper **must not** be inserted

FOR EXAMINER USE ONLY

QUESTION	MAX SCORE	CANDIDATE'S SCORE
1-30	80	

1. How is support provided for in a herbaceous stem? (1mk)

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2. State two functions of the cell sap (2mks)

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3. Explain why tadpoles in a certain fish pond failed to become adults through out their cycle? (2mks)

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4. Explain the biological principles behind the preservation of meat by

(i) Salting (1mk)

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(ii) Refrigeration (1mks)

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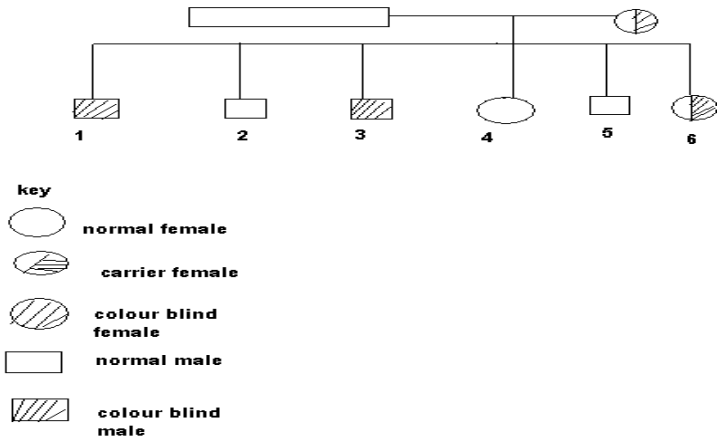
5. Study the genetic chart below showing the inheritance of gene responsible for colourblindness in a family:



Write the genotype of individuals (3mks)

1……

2…….

6…….

6. What is meant by double fertilization? (2mks)

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7. State one functional difference between sensory and motor neurons (1mk)

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8. State two reasons why the class insecta in the phylum arthropoda has the largest number of individuals (2mks)

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9. Why is the transport system in black jack (<u>Bidens</u> <u>pilosa</u>) considered to be more advanced than that of a fern? (1mk)

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10. Give one merit and one demerit of Lamarck's theory of evolution (2mks)

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11. Explain why the shortest food chains are always the most efficient (1mk)

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12. State two reasons why most of the land animals excrete their nitrogenous wastes in form of urea (2mks)

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13. Give a reason why the breakdown of pyruvic acid in the mitochondria occurs in a series of enzyme controlled reaction (1mk)

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14. (a) What is the role of the nasal cavity in the breathing system of mammals (2mks)

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(b) State the significance of the following characteristics in respiratory surfaces: (2mks)

(i) Thinness

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(ii) Moist

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15. (a) Name the other transport system in mammals other than blood system (1mk)

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(b) Distinguish between natural acquired immunity and artificial acquired immunity (2mks)

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16. (a) What is the significance of blood clotting (2mks)

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(b) Explain the reason why blood does not clot in undamaged blood vessels (2mks)

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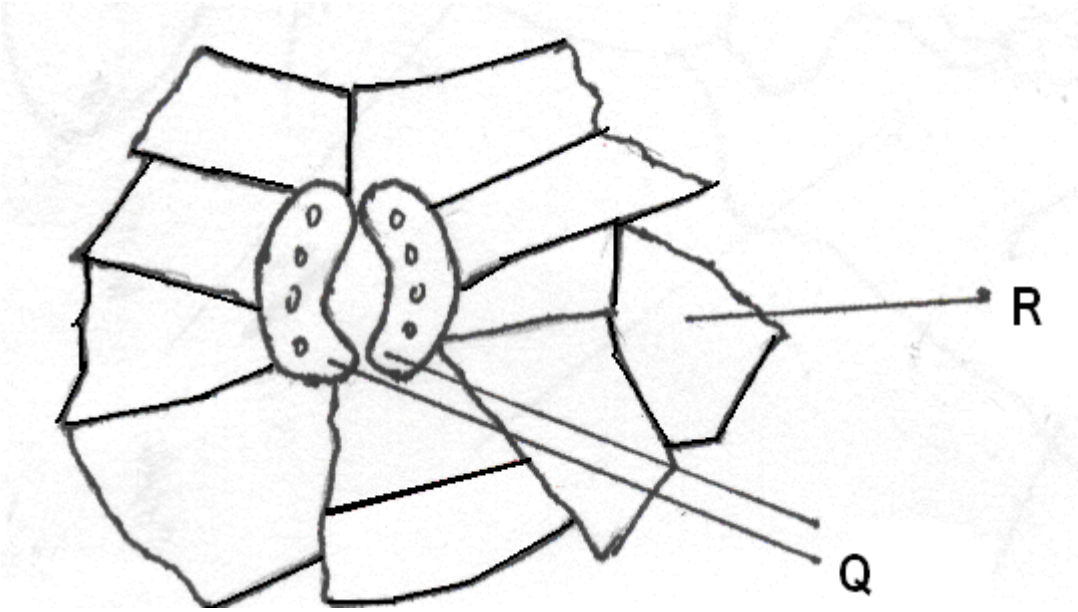
17. The diagram below represents a structure found in plants



(a) State the function of the structure labeled Q (1mk)

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(b) Give two structural differences between Q and R (2mks)

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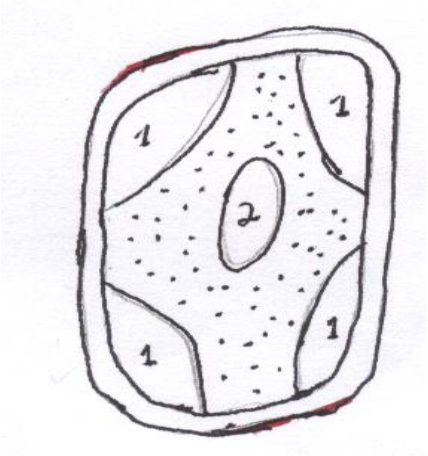
18. The diagram below shows the appearance of a plant cell after it had been placed in a strong salt solution.



(a) Name the process that is observed in the cell (1mk)

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(b) (i) Name the substance present in the region marked 1 (1mk)

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(ii) Explain your answer in (b) above (2mks)

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19. State the function of the following parts of a light microscope: (2mks)

(a) Diaphragm

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(b) Condenser

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20. Name the diseases caused by lack of the following in the human diet (2mks)

(i) Vitamin C

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(ii) Phosphorous

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21. State three roles played by the bark in plants (3mks)

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22. (a) Where are the following muscles located in the human body (2mks)

(i) Skeletal muscles

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(ii) Smooth muscles

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(b) State three structural differences between the two types of muscles named in (a) above (3mks)

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(a) Give two causes of discontinuous variations. (2mks)

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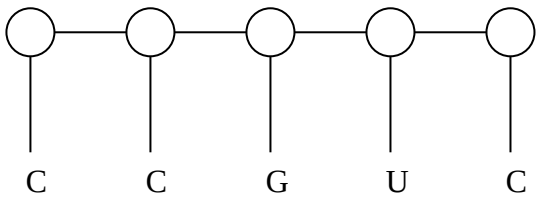
(b) The sequence below is a portion of a nuclei acid



With a reason identify the nucleic acid to which the portion belongs (2mks)

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(a) Why are the lipids suitable storage substances in the tissues of organisms? (1mk)
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(b) Explain why olive oil is different from corn oil whereas the building units of all lipids are fatty acids and glycerol (2mks)
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23. (a) A patient whose pancreatic duct had blocked was found to have normal blood glucose but the process of digestion was impaired. Explain (2mks)
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(b) Explain each of the following:
(i) A leaf cannot be tested for starch by adding iodine solution directly (1mk)
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……..
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(ii) Plants will not photosynthesize in the dark (1mk)

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24. (a) State two roles of a fruit in a plant (2mks)

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(b) (i) What is the main difference between a ripe and unripe fruit (1mk)

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(ii) Explain what happens in the process of ripening of a fruit (1mk)

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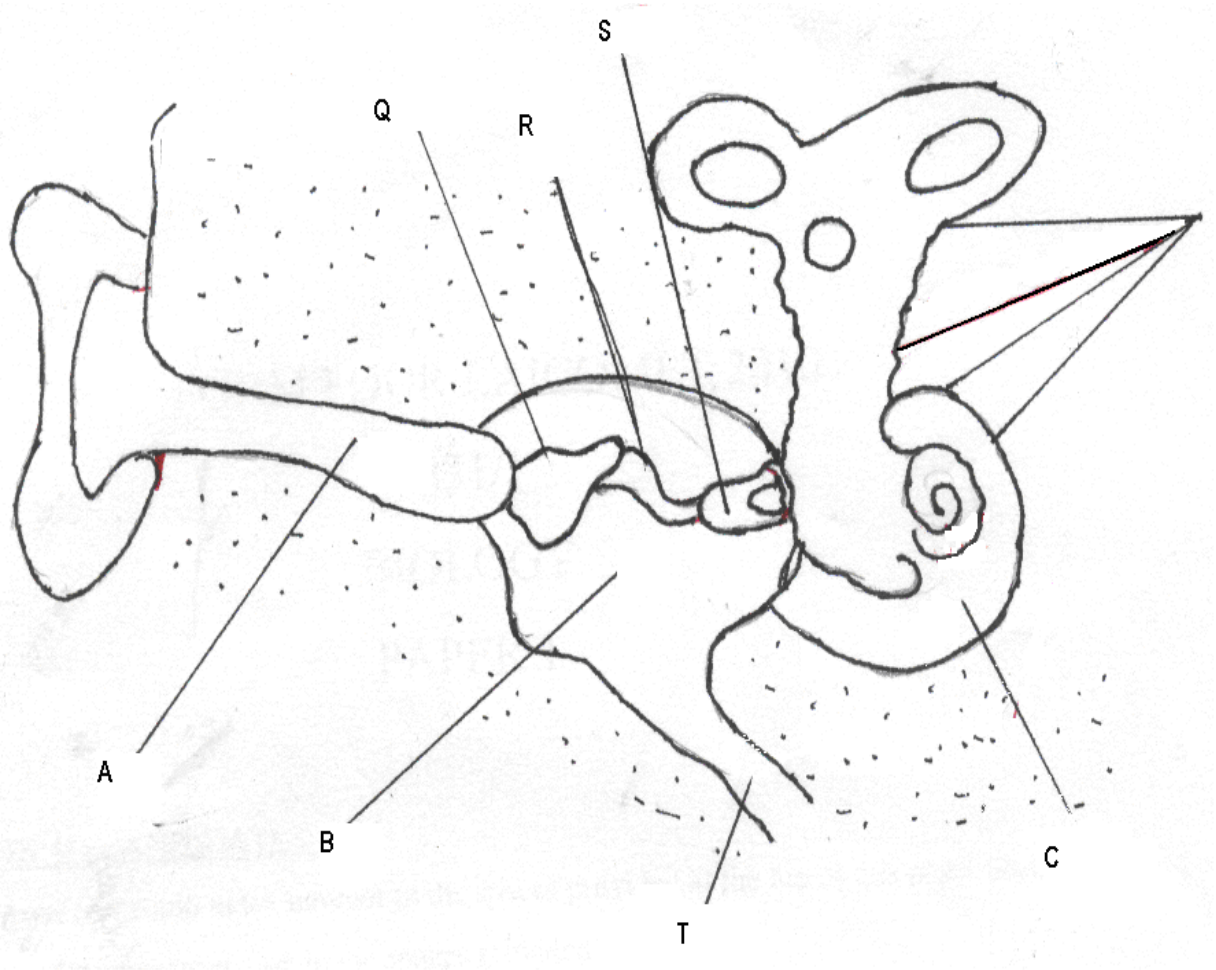
25. The diagram below shows the internal structure of the mammalian ear



(a) Name the parts labeled Q and S (2mks)

Q…….

S…….

(b) Explain what would happen if the part labeled T is blocked (2mks)

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26. (a) What is meant by the following terms:

(i) Ecological niche (1mk)

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(ii) Community (1mk)

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(b) What is the importance of the following in an ecosystem?

(i) Bacteria and fungi (1mk)

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(ii) Predators (1mk)

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27. Outline three roles of active transport in the human body (3mks)

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28. (a) State the role of enzyme catalase in living cells (1mk)

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(b) Which factor inactivates enzyme action? (1mk)

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