**Name……** **Index No. …….**

**School ……...**

**231/1**
**BIOLOGY**
**THEORY**
**PAPER 1**
**JULY/AUGUST 2007**
**TIME: 2 HOURS**

# TESO DISTRICT MOCK EXAMINATIONS - 2007

***Kenya Certificate of Secondary Education (K.C.S.E)***

**231/1**
**BIOLOGY**
**THEORY**
**PAPER 1**
**JULY/AUGUST 2007**
**TIME: 2 HOURS**

**INSTRUCTIONS TO CANDIDATES**

- *This paper has 28 questions.*
- *Answer all the questions in the spaces provided.*

**For Examiner's Use only**

| QUESTION | MAXIMUM SCORE | CANDIDATES SCORE |
|---|---|---|
| 1 - 28 | 80 | |

*This paper consists of 12 printed pages.*
*Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing*

1. Name the chemical substances that constitute the cell membrane. (1mk)

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2. Name the kingdom to which each of the following organisms belong. (2mks)

(i) Yeast ……

(ii) Spirogyra ……

3. Red blood cells will only maintain the shape and function if their solute content is the same as that of their surroundings. Examine the data shown in the table below regarding the percentage red blood cells haemolysed at different concentrations.

| % NaCl | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 |
|---|---|---|---|---|---|---|
| % Red blood cell haemolysed | 100 | 90 | 70 | 50 | 20 | 0 |

a) State the salt concentration at which all the red blood cells are haemolysed. (1mk)

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b) At which salt concentration are the number of haemolysed blood cells equal to the normal red blood cells. (1mk)

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c) Suggest what would happen if the red blood cells are placed in 1% sodium chloride solution. (2mks)

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4. a) Name the specific part of the chloroplast where the following processes occur. (2mks)

(i) $CO_2$ fixation ……..

(ii) Photolysis …….

b) In what ways do the dark reactions of photosynthesis depend on the light reactions. (2mks)

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5. State the role of the following parts in the mammalian digestive system.

a) Lacteals in the villi. (1mk)

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b) Goblets cells (1mk)

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6. Name the substances transported along the following parts of the vascular tissue. (4mks)

(i) xylem vessels

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(ii) Phloem tissue;

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7. Why do the incoming blood in the vena cava to the heart have. (2mks)

(i) Low $O_2$ concentration;

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(ii) Low blood pressure;

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8. During an experiment it was found that germinating bean seeds released $9.0cm^3$ of $CO_2$ and used $8.8cm^3$ of $O_2$

(a) Calculate the respiratory quotient (R.Q) (2mks)

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(b) State the type of respiration occurring? (1mk)

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9. Explain why the hair on the human skin become erect during cold weather. (2mks)

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10. State three features which enable a locust belong to the phylum arthropoda. (3mks)

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11. a) What is the role of the following organisms is an ecosystem? (2mks)

(i) Green plants

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(ii) Fungi

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b) Distinguish between ecosystem and population. (2mks)

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12. a) State the role of each of the following parts of the human testis. (4mks)

(i) Epididymis

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(ii) Seminiferous tubules

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b) State two roles of the placenta. (2mks)

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13. a) Name the type of germination shown by a maize seedling. (1mk)

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b) Name three conditions within the seed that are necessary for seed germination. (3mks)

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14. State two sex linked traits carried in the X-chromosomes. (2mks)

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15. a) Define speciation. (1mk)

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b) State two mechanisms that lead to speciation. (2mks)

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16. An experiment was carried out on blowfly larvae as shown in the diagram below.

| Lighted region | Dark region |
|---|---|
| O O<br>O O | |

After 30 minutes most of the blowfly larvae moved to the dark region.

a) Name the type of response being investigated. (1mk)

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b) What is the significance of the response to the organism. (2mks)

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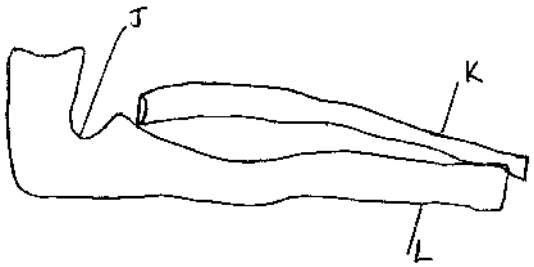
17. The figure below represents a bone obtained from a rabbit.




a) Name part J and bone L. (2mks)

Part J ……..

Bone L ……

b) (i) Which bone articulate with bone L at part J. (1mk)

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(ii) Identify the type of joint formed at part J. (1mk)

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18. What is the effect of adrenaline hormone on (2mks)

(i) the intercostals muscles

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(ii) Blood circulation

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19. (i) Name three features that promote cross pollination in flowering plants. (3mks)

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(ii) What is the biological importance of cross pollination to a plant. (1mk)

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20. State two ways by which nitrogen is made available for plant use. (2mks)

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21. State three methods by which plants get rid of their excretory waste products. (3mks)

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22. Explain why some bacteria develop resistance to drugs after they have been subjected to it for sometime. (2mks)

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23. Name the type of muscles found in

(a) Heart (1mk)

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(b) Artery (1mk)

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(c ) Give two distinguishing features of skeletal muscles. (2mks)

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24. a) Suggest what would happen to a grassland ecosystem if all secondary consumers were eliminated. (2mks)

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b) What is the significance of the following features found in xerophyhtic plants. (2mks)

(i) Hairy leaves

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(ii) Needle like leaves

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25. What is the role of mucus found along the alimentary canal. (2mks)

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26. A woman of blood group A gave birth to twins; one of blood group A and another of blood group O. Determine the genotype of (2mks)

a) Woman ……

b) Husband ……..

27. State the role of active transport in plants. (2mks)

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28. Other than energy, name other products of anaerobic respiration in plants. (2mks)

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