**NAME………………………………………………………….. ADM. NO……………………**

**END OF TERM EXAMINATION**

**TERM ONE, 2018**

**FORM TWO**

**BIOLOGY**

**ITETANI GIRLS’ HIGH SCHOOL**

**P.O. BOX 2220 – 90100**

**MACHAKOS**

**231**

**BIOLOGY**

**TIME: 2 HOURS**

**INSTRUCTION TO CANDIDATES**

* Write your name and index number in the spaces provided, sign and write the date
* Answer ALL the question in the spaces provided
* Answer ALL questions in English
* Candidates may be penalized for wrong spellings of technical terms.

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| --- | --- | --- |
| **QUESTION** | **TOTAL MARKS** | **CANDIDATE’S SCORE** |
| **1-10** | **100** |  |

1. a) State the function of the parts of a microscope below: (5 Marks)

i) Condenser

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ii) Revolving nose piece

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iii) Eye piece

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iv) Fine adjustment knob

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v) Course adjustment knob

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b) Outline any five differences between a light microscope and an electron microscope (5 Marks)

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2. a) A petrol generator is able to break down fuel in the presence of oxygen to produce electric energy and carbon (iv) oxide gas yet it is not classified as a living organism. Explain. (5 Marks)

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b) Name the sub-branch of Biology which deals with the following: (5 Marks)

i) Determining the real parents of a disputed child

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ii) Determining the appropriate insecticide during a locust infestation

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iii) Researching for the cure of Acquired Immune Deficiency Syndrome (AIDS)

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iv) Assigning a scientific name to a newly discovered organism

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v) Coming up with a biological control of water hyacinth in Lake Victoria

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3. a) What is the role of the following properties of the cell membrane (2 Marks)

i)Semi permeability

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ii)Possession of electric charges

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b) Osmosis is said to be 'a special kind of difussion'. Explain (2 Marks)

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c) Explain how the following affect the rate of active transport (2 Marks)

i) Glucose concentration

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ii) Enzyme inhibitors

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d) The diagram below shows a certain tissue found in plants.

i) What is a tissue (1 Mark)

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ii) What is the name of the tissue above? (1 Mark)

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iii) How is the tissue above modified to perform its functions? (1 Mark)

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iv) Which part of the stem is the tissue above most likely to be located? (1 Mark)

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4. a) Differentiate between: (6 Marks)

i) Chemosynthesis and photosynthesis

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ii) Autotrophic nutrition and heterotrophic nutrition

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iii) Holozoic nutrition and parasitism

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b) Explain what happens in the light stage of photosynthesis (4 Marks)

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5. a) Explain any three ways in which the leaves are adapted for photosynthesis (3 Marks) ………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

b) Explain how temperature affects the rate of photosynthesis (2 Marks)

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c) other than temperature, state any other factor which affects the rate of photosynthesis ( 1 Mark)

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d) What happens to the products of photosynthesis? (3 Marks)

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e) what is compensation point? (1 Mark)

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6. a) Define the word peristalsis (1 Mark)

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b) what is the difference between mastication and digestion (2 Marks)

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c) Explain why the action of ptyalin on starch stops once the food enters the stomach (2 Marks)

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d) State two enzymes in the human body which are produced in their inactive forms (2 Marks)

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e) what is the importance of producing the enzymes stated in d) above in their inactive form? (1 Mark)

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f) Explain why athletes are given glucose powder to ingest after a long race and not starch powder. (2 Marks)

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7. a) On a field study to an hospital, Form One students observed a patient with the symptoms below:

* Bleeding of gums and mouth
* Low immunity to infections
* Poor healing of wounds

i) What was the patient suffering from? (1 Mark)

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ii) Which nutrient was the patient lacking in his diet? (1 Mark)

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iii) Which food would you advice the patient to eat in order to recover from the disease? (1 Mark)

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b) State any two significances of calcium in the human body (2 Marks)

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c) what is emulsification? (1 Mark)

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d) What is the importance of emulsification in the human body? (1 Mark)

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e) State any three enzymes which are present in succus enterecus (3 Marks)

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8. a) Give two reasons as to why unicellular organisms do not have a complex transport system (2 Marks)

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b) state any three differences between open circulatory system and closed circulatory system (3 Marks)

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c) Explain two ways in which the muscles of the heart are special (2 Marks)

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d) State the functions of the following parts of the heart: (3 Marks)

i) Septum

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ii) Pericardium

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iii) Sino-atrio node

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9. a) Why are the cardiac muscles of the left ventricle larger than those of the right ventricle? (2 Marks)

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b) State any four differences between xylem and phloem (4 Marks)

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c) Why is the xylem tissue made up of dead cells? (1 Mark)

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d) Xylem vessels are more efficient in transport compared to tracheids. Explain. (2 Marks)

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e) What is the name given to the structures which are responsible for communication between a companion cell and a sieve tube in the phloem tissue? (1 Mark)

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10. a) Form two students severed the head of a pig and observed two blood vessels, A and B. Blood in blood vessel A flowed smoothly while blood in blood vessel B flowed in pulses.

i) What type of blood vessels were blood vessel A and B (2 Marks)

A-………………………………………………………………………………………………………

B-………………………………………………………………………………………………………

ii) Give one reason as to why blood in blood vessel B flowed in pulses. (1 Mark)

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iii) State two differences between the muscles of blood vessel B and muscles of the heart. (2 Marks)

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iv) State any one adaptation of blood vessel A to its functions. (1 Mark)

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b) state the difference in contents between the hepatic portal vein and pulmonary vein (2 Marks)

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c) What is ultrafiltration. (2 Marks)

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