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

**SIGNATURE………………………………………………….. DATE………………………..**

**END OF TERM EXMANINATION**

**TERM ONE, 2018**

**FORM THREE**

**BIOLOGY**

**ITETANI GIRLS’ HIGH SCHOOL**

**P.O. BOX 2220 – 90100**

**MACHAKOS**

**231/1**

**BIOLOGY**

**PAPER 1**

**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.

|  |  |  |
| --- | --- | --- |
| **QUESTION** | **TOTAL MARKS** | **CANDIDATE’S SCORE** |
| **1-15** | **80** |  |

1. a) In an ecological study in a forest ecosystem, form three students captured and marked 250 monkeys and released them back into their natural habitat. Three weeks later, they captured 200 monkeys from the same area of study, out of which 50 monkeys had marks.

 i) Using the data provided above, estimate the population of monkeys in the area of study

 (3 Marks)

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ii) Given that the area of study 500m2, determine the population density of the area of study (2 Marks)

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 iii) State any two assumptions that the students made during the study (2 Marks)

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b) Differentiate between population and community (2 Marks)

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c) Using appropriate examples, define the following terms as used in the nitrogen cycle

 i) Symbiosis (2 Marks)

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 ii) Saprophytism (2 Marks)

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2. Study the illustration below and answer the questions that follow:

S

R

R

Q

Q

P3

P2

P1

Z

PLANTS

Y

AMMONIA

X

FREE NITROGEN IN THE AIR

a) Using Processes P1, P2 and P3 as an example, differentiate between biotic and abiotic factors (3 Marks)

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b) Name the processes labeled Q and R (2 Marks)

Q-……………………………………………………………………………………………………

R-…………………………………………………………………………………………………….

c) Name the substances labeled X and Y (2 Marks)

X-………………………………………………………………………………………………………

Y-………………………………………………………………………………………………………

d) State two kingdoms to which the organisms responsible for process S can belong.(2 Marks)

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e) Name two organisms which are responsible for process Q (2 Marks)

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3. Study the feeding relationship above and answer the questions that follow:

Grasshopper

Frogs

Green Algae

Chicken

Human being

Tilapia

Zooplanktons

Nile perch

Grass

Shark

a) What is the main source of energy in the food web above? (1 Mark)

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b) Name two organisms which are missing in the food web above (2 Marks)

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c) Name two organisms which have the highest biomass (2 Marks)

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d) From the food web above, construct a food web which has a quaternary consumer (2 Marks)

e) State two ecosystems from which the food web has been drawn from (2 Marks)

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4. Outline three differences between members of class chilopoda and diplopoda (3 Marks)

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5. Define the following terms:

a) Haemolymph (1 Mark)

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b) Haemocoel (1 Mark)

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c) Septum (1 Mark)

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6. Explain why single celled organisms do not have complex circulatory systems as in multicellular animals (2 Marks)

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7. Explain why;

 a) The xylem is made up of dead cells (1 Mark)

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 b) The stem of some plants have a green colour (1 Mark)

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8. a) Outline any four characteristics of gaseous exchange sites (4 Marks)

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b) State the gaseous exchange site in:

 i) A house fly (1 Mark)

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 ii) A frog (1 Mark)

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 iii) A Tilapia fish (1 Mark)

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 iv) A Human being (1 Mark)

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9. Give three reasons as to why plants do not have specialized excretory organs (3 Mark)

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10. State any two uses of vacuole in unicellular organisms (2 Marks)

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11. The diagram below represents a kidney nephrone

a) Name the parts labeled V, W, X and Y (4 Marks)

V-………………………………………………………………………………………………………

W-………………………………………………………………………………………………………

X-……………………………………………………………………………………………………....

Y-………………………………………………………………………………………………………

b) Explain why the part labeled X is long in camels (3 Marks)

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c) Explain the difference between blood vessel A and B (1 Mark)

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12. Explain why vitamins are absorbed in the stomach (1 Mark)

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13. Form one students extracted a sample of digested food substances from the ileum of a rabbit. They then conducted a food test on the sample.

1. Predict their results in the table below: (6 Marks)

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| --- | --- | --- | --- |
| **FOOD** | **PROCEDURE** | **OBSERVATION** | **INFERENCE** |
| Non-reducing sugars |  |  |  |
| Lipids  |  |  |  |
| Reducing sugars |  |  |  |

1. What would be their observation if they tested for the presence of Vitamin C?(1 Marks)

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1. Give one reasons for your answer in b) above (1 Mark)

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14. Study the equation below and answer the questions that follow:

C6H12O6 +6O2 6CO2 +6H2O +ATP

a) State the type of respiration shown above (1 Mark)

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b) Calculate the respiration quotient of the reaction above (3 Marks)

c) Name the type of substrate being broken down to produce energy in the equation above (1 Mark)

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15. Name any two functions of the liver (2 Marks)

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