**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**

**231/2**

**BIOLOGY**

**(THEORY)**

**PAPER 2**

**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 section A in the spaces provided
* In Section B, answer question 6 (compulsory question) and any other question from the remaining two questions (i.e. 7 or 8)
* Candidates may be penalized for wrong spellings of technical terms.

|  |  |  |
| --- | --- | --- |
| **SECTION** | **TOTAL MARKS** | **CANDIDATE’S SCORE** |
| **A** | **40** |  |
| **B** | **40** |  |
| **TOTAL** | **80** |  |

**SECTION A: ANSWER ALL THE QUESTIONS IN THIS SECTION**

1. The diagram below represents the nucleus of an animal cell:

a) Name the part labeled P, Q and R (3 Marks)

P-………………………………………………………………………………………………………

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

R-………………………………………………………………………………………………………

b) Outline two processes which would stop if the nucleus of a cell was removed (2 Marks)

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c) Explain the difference between the structure shown above in animals and in bacteria (2 Marks)

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d) Name one cell organelle which is present in plants but absent in animals (1 Mark)

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2. a) Explain what happens in the first phase of aerobic respiration (2 Marks)

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b) What happens to the products of a) above in a plant cell if oxygen is not available (2 Marks)

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c) State two differences between the products in b) above and the products of the same process in animals (2 Marks)

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d) What is meant by the term ‘Oxygen debt’ (2 Marks)

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3. A student noticed an organism which had three pairs of jointed appendages and three body parts. She classified the organism in class insecta.

a) To which phylum does the organism belong to? (1 Mark)

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b) Why did she classify the organism in class insecta and not class arachnida (2 Marks)

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c) State two characteristics which are present in kingdom Monera but absent in kingdom Protoctista. (2 Marks)

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d) The scientific name of a fruit fly is *Drosophila melanogaster.*

i) Rewrite the name following the correct rules of binomial nomenclature (2 Marks)

ii) What is a scientific name? (1 Mark)

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5. Study the flow chart below and answer the questions that follow:

SUNLIGHT

B

A

Y + CO2 C6H12O6 + H2O

X

O2

Y

H2O +

1. Name the stages labeled A and B (2 Marks)

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

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

1. Name the substances labeled Y and X (2 Marks)

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

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

1. Name two conditions which must be present for the process in stage B to occur (2 Marks)

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1. Explain the fate of the products of the process represented above (2 Marks)

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**SECTION B: ANSWER QUESTION 6 (COMPULSORY) AND CHOOSE ONE QUESTION BETWEEN QUESTION 7 AND 8**

6. An experiment was carried out to investigate the effect of temperature on the rate of reaction catalyzed by an enzyme. The results are shown in the table below:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Temperature (oC) | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| Rate of reaction in mg of products per unit time | 0.2 | 0.5 | 0.8 | 1.1 | 1.5 | 2.1 | 3.0 | 3.7 | 3.4 | 2.8 | 2.1 | 1.1 |

a) On the grid provided, draw a graph of rate of reaction against temperature (7 marks)

b) When was the rate of reaction 2.6 mg of product per unit time? (1 mark)

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c) Account for the shape of the graph between: (6 marks)

i) 5oc and 40oc

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ii) 45oc and 60oc

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d) Other than temperature, name two ways in which the rate of reaction between 5oc and 40oc could be increased. (2 marks)

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e)  i) Name one digestive enzyme in the body which works best in acidic conditions ( 1 mark)

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ii) How is the acidic condition for the enzyme named in i) above attained in the body? (1 marks)

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iii) The acidic condition in ii) above is later neutralized, name the site for neutralization and the substance responsible for neutralization (2 marks)

**SITE** ………………………………………………………………………………………………………………..

**SUBSTANCE** ……………………………………………………………………………………………………………….

7. Explain how the alimentary canal is adapted to perform its functions. (20 Marks)

8. a) Osmosis is said to be ‘Selective diffusion’. Explain (2 Marks)

b) Explain the observation which would be made when a red blood cell and a palisade cell were placed in hypotonic solution (16 Marks)

c) Explain one role of osmosis in animals (2 Marks)

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