**NAME ……………………………………………………………….ADM……………CLASS…………….**

 **MID TERM THREE EXAM 2022**

**FORM THREE BIOLOGY PAPER ONE**

*Answer all questions in the spaces provided*

1. Insects’ blood is noted to lack a respiratory pigment. Explain (1 mark)

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1. State the function of the following parts of a nephron.
2. Loop of Henle (1 mark)

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1. Distal convoluted tubule. (1 mark)

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1. Most terrestrial plants do not grow well in water logged soils. Give a reason for this (1mark)

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1. The diagrams below show a pair of homologous chromosomes. Study them and answer the questions that follow.
2. State the phenomenon shown above (1mark)

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(ii) What is the genetic significance of the phenomenon above? (2 marks)

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1. Give two destinations of food translocated from the leaves of plants. (2 marks)

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1. Name the organelle that is likely to be found in abundance in:
2. An enzyme secreting cell.

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1. Cells producing lipid related secretions.

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1. Areas where the cells have raptured

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1. A small boy remarked that his dog looks larger on cold days than on hot days. Give a biological explanation for this. (2 marks)

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1. The table below shows the percentage composition of carbon (IV) oxide and oxygen in inhaled and exhaled air.

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| --- | --- | --- |
| Gases | Inhaled air | Exhaled air |
| Oxygen | 20 % | 17% |
| Carbon (IV) oxide | 0.04% | 4.0% |

Explain the differences in percentage of the two gases in inhaled and exhaled air.

1. Oxygen (2 marks)

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1. Carbon (IV) oxide (2 marks)

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1. The diagram below represents a pyramid of biomass derived from a certain ecosystem.

Consumer

Producer

1. Suggest the type of ecosystem from which the pyramid was derived (1 mark)

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1. State the significance of short food chains in an ecosystem. (1 mark)

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1. Distinguish precisely between diabetes mellitus and diabetes insipidus ( 2 marks)

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1. The set up below shows apparatus to demonstrate a certain biological process



1. What biological process was being investigated in the experiment (1 mark)

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1. Write down a word equation that represents the reaction above. (1 mark)

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1. In the above set up, why was it important to boil and cool glucose before adding yeast? (1 mark)

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1. Name the excretory products eliminated by the following animals.
2. Tilapia. (1 mark)

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1. Chicken. (1mark)

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1. Name the causative organism of the following diseases.
2. Malaria (1mark)

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1. Bilharzia (1mark)

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1. Identify the part of light microscope which serve each of the functions described below
2. Making rough focus ( 1mark)

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1. Reflecting light from the source (1 mark)

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1. State two characteristics of aerenchyma tissue. (2marks)

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1. What is the significance of transpiration in plants? (3marks)

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1. State two ways in which xylem vessels are adapted to their functions. ( 2marks)

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1. State the characteristics that distinguish the following organisms into their respective classes (3 marks)

 Millipedes,spider and tsetse fly.

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1. How do identical twins and fraternal twins arise?
2. Identical twins (2 marks)

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1. Fraternal twins. (2 marks)

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1. The diagram below illustrates part of a nephron from a mammalian kidney.
2. Name the fluid found in the part labeled Q. (1 mark)

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1. Identify the process responsible for the formation of the fluid named in (a) above (1mark)

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1. Which two hormones exert their effect in the nephron? (2 marks)

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1. The experiment illustrated below was set up to investigate a certain physiological process using a raw tuber.



1. Suggest a possible physiological process that was being investigated. (1 mark)

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1. Explain the results obtained in the above experiment after a few hours (2 marks)

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1. State the observations that would have been made if the experiment was repeated using boiled potato.

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**22.** A certain plant was found to have 22 chromosomes in its calyx cells. State the number of chromosomes present in. (3 marks)

a) Embryo sac nucleus

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c)Pollen grains

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23.Define the following term (2mk)

a)Growth

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b)Development

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**24.** Account for the loss in dry weight of cotyledons in a germinating bean seed. (2 mark)

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**25.** The diagram below represents the internal structure of a bean seed.

**plumule x**

**hypocotyl**

**Y**



a) Name the parts the seed embryo represented by letter X and Y. (2 marks)

X .............................................................................................................................................................. Y ..............................................................................................................................................................

b) What type of germination would result if the hypocotyl elongates faster. (1 mark)

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**26.** a) State TWO processes which occur during anaphase of mitosis. (2 marks)

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**27.**Below is a simplified diagram of a flower.



i) Suggest its agent of pollination. (1 mark)

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iii) Explain one observable mechanism that will hinder self pollination and fertilization in the above flower. (1 mark)

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28.State four functions of water during germination (4mks)

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29.State three factors that causes seed dormancy (3mks)

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30)Give two examples of meristematic cells (2mks)

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