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Muungano KCSE Trial Exam*231/1***BIOLOGY***PAPER 1(Theory)**July 2017**2 Hours***INSTRUCTIONS TO CANDIDATES**

Write your name and index in the spaces provided.

Answer *All* the questions in the spaces provided.**FOR OFFICIAL USE ONLY**

QUESTION	MAXIMUM SCORE	CANDINDATES SCORE
1-33	80	

*This paper consists of 10 printed Pages**Candidates should check the question paper to ensure that all the pages are printed as indicated**and no questions are missing***Turn Over**

Answer ALL questions from this section.

1. (a) **State two features** of a ball and socket joint (2mks)

.....
.....

(b) **Name the bone** that allows the head to:- (2mks)

- (i) Node.....
- (ii) Turn sideways.....

2. a) Using a microscope, a student counted 55 cells across a field of view whose diameter was 6000µm. **Calculate** the average length of the cells. **Show your working.** (2mks)

.....
.....
.....

(b) **State the function** of the following parts of a light microscope (1mk)

(i) Fine adjustment knob.

.....

(ii) Condenser (1mk)

.....

3. **State one use** for each of the following apparatus in the study of living organisms. (1mk)

a) Pooter

.....

b) Bait trap (1mk)

.....

4. (a) **What is** a teat pipette used for in Biology Laboratory Lesson? (1mk)

.....

(b) **Give the name** of a reagent that is used to test substances and at the same time used as a stain in the laboratory. (1mk)

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5. **Explain** the following statements:

i) The action of ptyalin stops at the stomach. (1mk)

.....

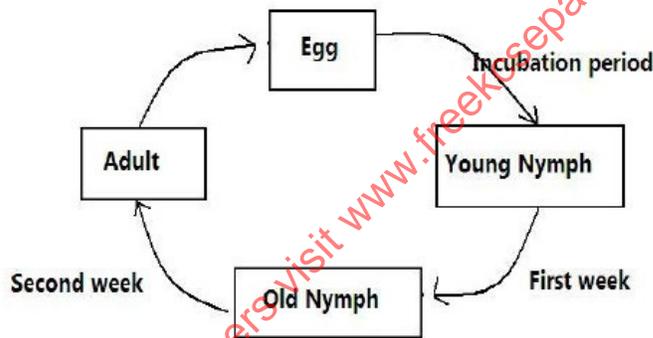
ii) The small intestines contains villi. (1mk)

.....

iii) High temperatures stop enzyme action. (1mk)

.....

6. The diagram below shows a life cycle of a cockroach



a) **Name** the hormone that would be at high concentration during.

(i) First week (1mk)

.....

(ii) Second week (1mk)

.....

b) **Name the structure** that produces the hormone in a (ii) above (1mk)

.....

c) **Name the series** of stages through which the nymph undergoes to reach adult stage (1mks)

.....

7. The following organisms were found in a grassland habitat.

<i>Organism</i>	<i>Abundance</i>
Insect	500,000
Snakes	200
Green plants	2,000,000
Mongoose	5

(a) Using the data, **construct a pyramid** representing the order of feeding. (2mks)

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(b) **Identify two features** observable in the pyramid you have constructed. (2mks)

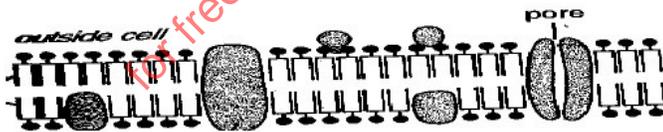
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(c) **Identify** the secondary consumer. (1mk)

.....

8. Below is a diagram of a structure found in Eukaryotic cells? Study it and answer the questions that follow



a) **Identify** the structure (1mk)

.....

b) **State two functions** of the structure (2mks)

.....

.....

9. The table below shows the approximate percentage concentration of various components in blood plasma entering the kidney, glomerular filtrate and urine of a healthy human being

<i>Component</i>	<i>Plasma</i>	<i>Glomerular filtrate</i>	<i>Urine</i>
Water	90	90	94
Glucose	0.1	0.10	0.00
Amino acids	0.05	0.05	0.00
Plasma proteins	8.0	0.00	0.00
Urea	0.03	0.03	2.00
Inorganic ions	0.72	0.72	1.50

(a) **Name the process** responsible for the formation of glomerular filtrate. (1mk)

.....

(b) **What process** is responsible for the absence of glucose and amino acids in urine?

(1mk)

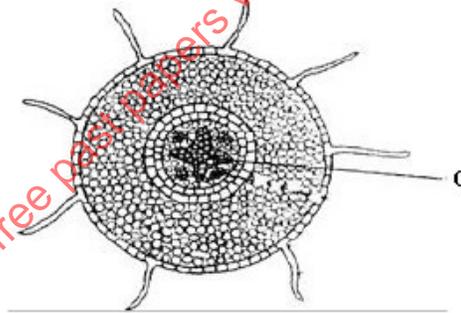
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(c) **Explain why** there are no plasma proteins in the glomerular filtrate?

(1mk)

.....

10. The diagram shows a section through a plant organ.



(a) (i) **Name the class** of the plant from which the section was obtained belong. (1mk)

.....

(ii) **Give a reason** for your answer in (a) (i) above.

(1mk)

.....

(iii) **How** is the part labelled **C** adaptable to its functions?

(3mks)

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Turn Over

11. A biological washing detergent contains enzymes which remove stains like mucus and oils from clothes which are soaked in water with the detergent:-

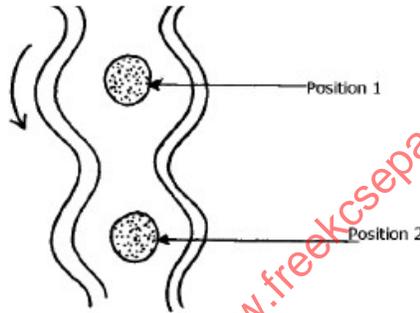
(a) **Name two groups** of enzymes that are present in detergent. (2mks)

.....

(b) **Explain why** stains would be removed faster with the detergent in water at 35°C rather than at 15°C. (2mks)

.....

12. The diagram below shows how food boluses move along the human oesophagus and the Intestine



(a) **Identify the process** illustrated in the diagram. (1mk)

.....

(b) **Briefly state** how the movement of food boluses from position 1 to position 2 is achieved. (1mk)

.....

(c) **Name one component** of a person's diet that assists in the movement of food described in (b) above. (1mk)

.....

13. **State what** would happen in each of the following; a plant cell placed in: -

(i) Strong salt solution. (1mk)

.....

(ii) Distilled water. (1mk)

.....

Turn Over

14. Part of one strand of a DNA molecule was found to have the following base sequence.

G-T-C-A-G-T

(a) **What is** the sequence on m-RNA strand copied from this DNA portion? (1mk)

.....

(b) **What would** be the sequence on the complementary DNA? (1mk)

.....

(c) **State two** roles of DNA molecule. (2mks)

.....

.....

15. Active yeast cells were added to dilute sugar solution in a container. The mixture was kept in a warm room. After a few hours bubbles of a gas were observed escaping from the mixture

(a) **Write an equation** to represent the chemical reaction above. (1mk)

.....

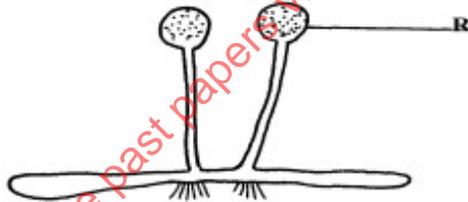
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(b) **State two economic** importance of this type of chemical reaction in industry? (1mk)

.....

.....

16. The diagram below represents a bread mould:-



(a) **Identify** the kingdom to which the organism belongs. (1mk)

.....

(b) **Name** the part labelled **R**. (1mk)

.....

(c) **Give two** economic importance of the above organism to human beings. (2mks)

.....

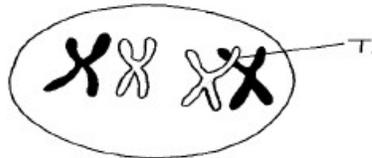
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17. During a class practical four students came across a plant whose flower floral parts were in multiples of fours and fives. **To which sub-division** and **class** does the plant belong? (2mks)

Sub-division.....

Class.....

18. The diagram below shows a phenomenon which occurs during cell division.



(a) Name the part labeled **T**. (1mk)

.....

(b) (i) **State** the biological importance of the part labelled **T**. (1mk)

.....

(ii) **Identify** the type of cell division in which this phenomenon occurs. (1mk)

.....

19. **Distinguish** between camouflage and mimicry. (1mk)

.....

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20. (a) **What** is meant by the term taxonomy? (1mk)

.....

(b) The scientific name of a rat is *Rattus norvegicus*.

(i) **Write** the name correctly. (1mk)

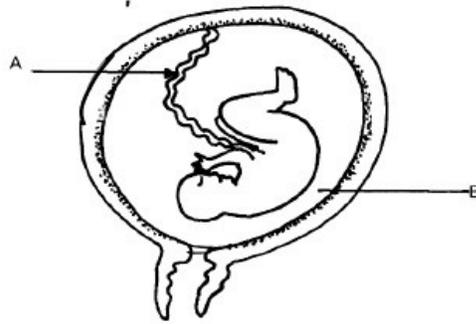
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(ii) **Identify** the generic and specific names. (2mks)

Generic name.....

Specific name.....

21. The diagram below represents a stage in the development of human foetus



(a) **State one function** of each of the structures labelled **A** and **B**. (2mks)

.....

(b) Apart from the size of the foetus **what else** from the diagram illustrates that birth was going to occur in the near future. (1mk)

.....

(c) **Explain why** a pregnant woman is supplied with doses of iron tablets regularly. (1mk)

.....

22. **Identify** the following responses shown by plants:-

(a) Shoots grow towards light. (1mk)

.....

(b) Roots grow towards gravity. (1mk)

.....

(c) Tendril intertwine around an object. (1mk)

23. A student was traveling from Nairobi to Mombasa. As the bus descended downhill he felt an unpleasant sensation in the ear.

(a) **How** did the sensation come about? (1mk)

.....

(b) **How** can the unpleasant sensation be relieved? (1mk)

.....

24. a) **State the form** in which oxygen is transported in the mammalian blood. (1mk)

.....

Turn Over

b) **Why is it** dangerous to sleep in an enclosed room with a burning jiko? (1mk)

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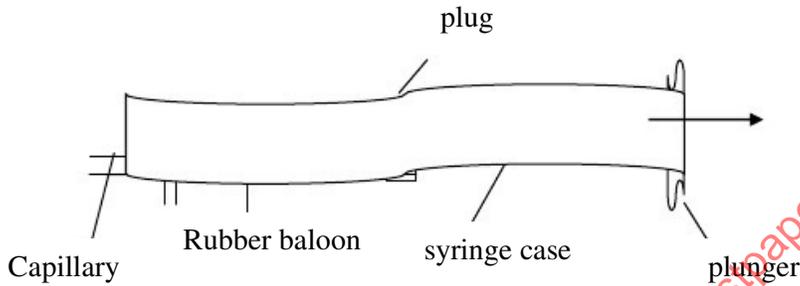
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c) **Why do plants** not take in oxygen during the day although they need it for respiration? (1mk)

.....

.....

25. The apparatus below illustrate breathing in a mammal.



(a) **Describe what happens** if the rubber plug is pulled in the direction shown by the arrow. (1mk)

.....

(b) **Give** the parts of mammal represented by:-

(i) Capillarity tube. (1mk)

.....

(ii) Rubber plug. (1mk)

.....

26. The diploid number of chromosomes in a guinea fowl is 60. **How many** chromatids does it have at the end of mitosis? (1mk)

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