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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)

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.....
.....

(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)

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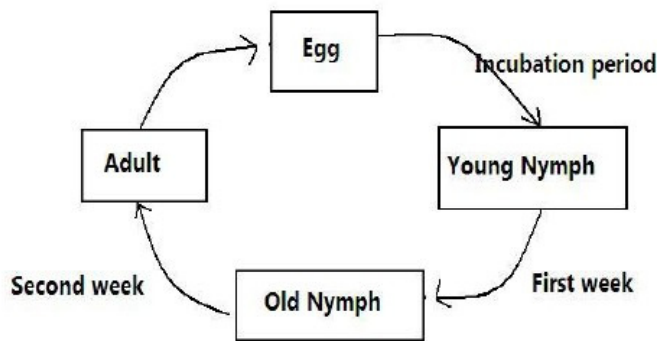
ii) The small intestines contains villi. (1mk)

.....
.....

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)

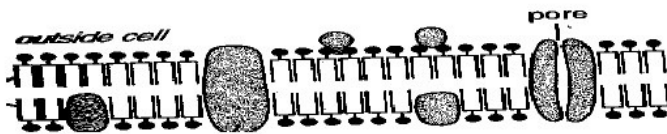
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(c) **Identify** the secondary consumer. (1mk)

.....

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)

.....

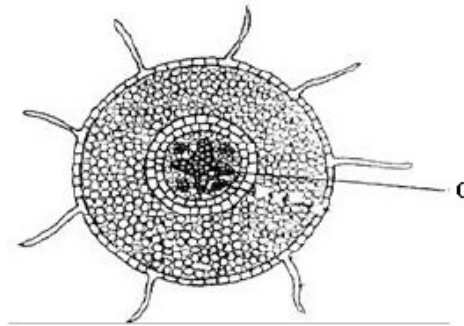
(b) *What process* is responsible for the absence of glucose and amino acids in urine? (1mk)

.....

(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)

.....



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)

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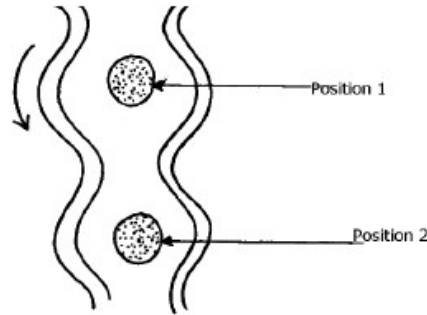
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(b) **Explain why** stains would be removed faster with the detergent in water at 35°C rather than at 15°C. (2mks)

.....

.....

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)

.....



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)

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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

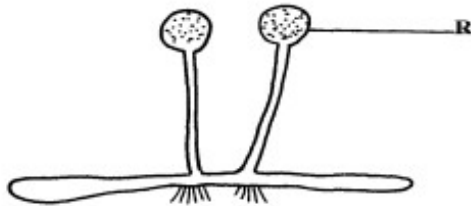
(a) **Write an equation** to represent the chemical reaction above. (1mk)

.....

(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)

.....

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)

.....

.....

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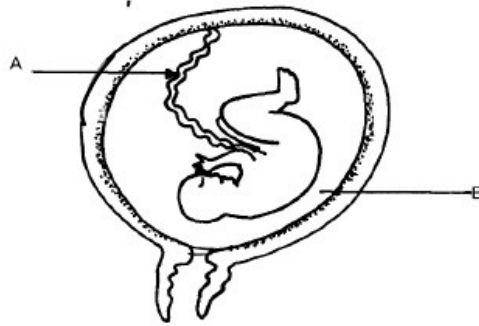
(ii) **Identify** the generic and specific names. (2mks)

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)

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.....

(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)

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.....

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

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.....

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

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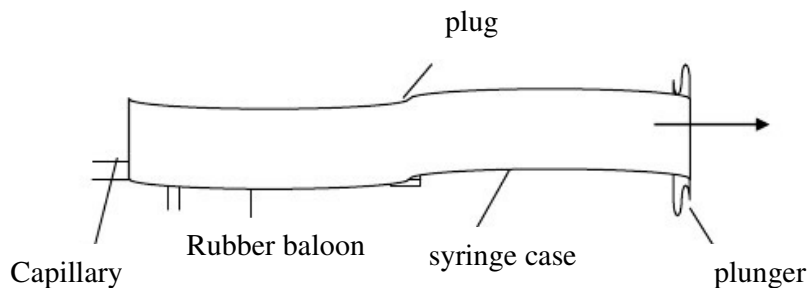
b) **Why is it** dangerous to sleep in an enclosed room with a burning jiko? (1mk)

.....

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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