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**ZERAKI ACHIEVERS HOLIDAY ASSIGNMENT**  
**TERM 2-2021**  
**BIOLOGY (QUESTION PAPER)**  
**FORM 3**

Name..... Adm no.....

School..... Class.....

Signature .....Date.....

Instructions to Candidate

- Answer all questions in the spaces provided.

1. **Name** the organelles that would be most likely found in large numbers in cells that perform the functions below. (2mks)

(a) A cell in the ileum that actively takes in glucose.

.....

(b) A cell in the liver that breaks down foreign bodies.

.....

.....

2. **State two** classes of the phylum Arthropoda in which the body is divided into cephalothorax and abdomen. (2mks)

.....

.....

3. (a) Define the following terms:- (2mks)

(i) Species:

.....

.....

(ii) Binomial nomenclature: -

.....

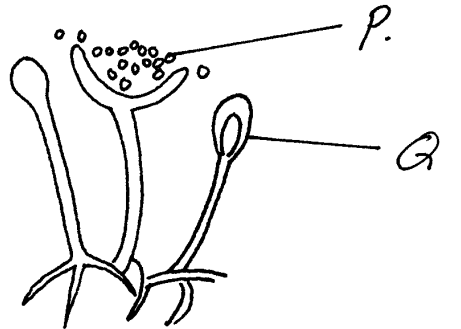
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(b) A certain sea animal has a smooth skin, lungs, regulates its body temperature and gives birth to young ones. The animal belong to the class

.....(1mk)

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4. The diagram represents a bread mould growing on damp bread.



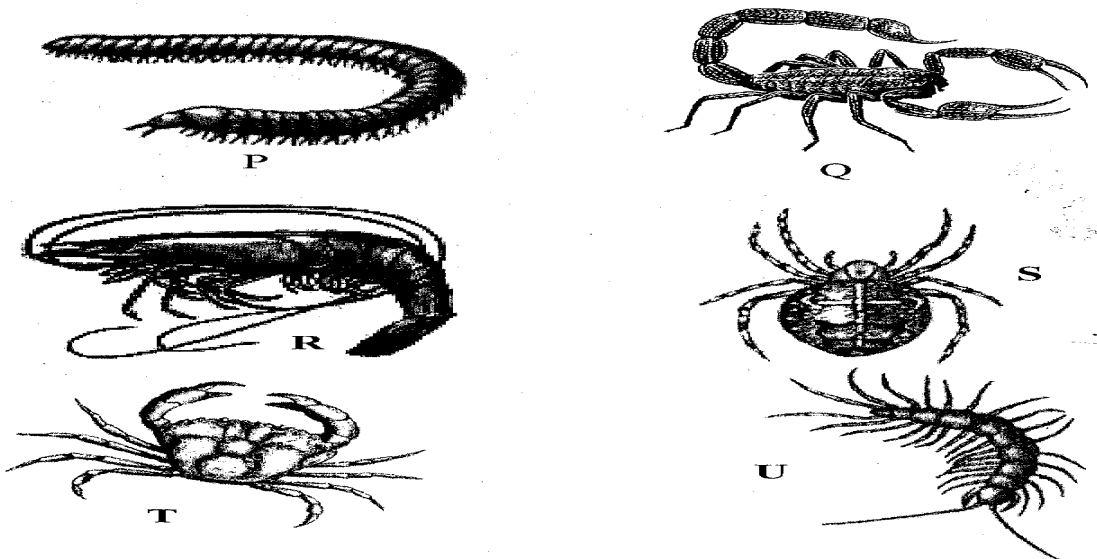
a) Name the structure labeled P & Q. (2mks)

.....

b) Identify the kingdom to which it belongs. (1mk)

.....

5. Below are photographs of organisms belonging to a certain phylum. Examine them and answer the questions that follow.



Below is a dichotomous key which can be used to identify the organisms whose photographs are provided above.

- 1 a Body divided into two segmented body parts ..... go to 2
- 1 b Body divided into more than two segments ..... go to 3
- 2 a Posses eight legs ..... go to 4
- 2 b Posses more than eight legs ..... go to 5
- 3 a Long cylindrical body with two pair of legs per segment ..... *Diplopoda*
- 3 b Long flattened body with one pair of legs per segment ..... *Chilopoda*
- 4 a Posses segmented abdomen ..... *Scorpionidae*
- 4 b Abdomen not segmented ..... *Crustacea*
- 5 a Flat leaf-like feet ..... *Branchiopoda*
- 5 b Feet not flat and leaf-like ..... *Decapoda*

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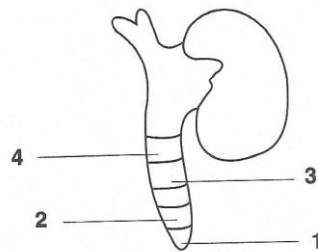
Identify organisms labelled **P, Q, T** and **U** by filling the table provided below: (8mrks)

Organism	Steps followed	Identity
<b>P</b>		
<b>Q</b>		
<b>T</b>		
<b>U</b>		

6. What is the role of light to a lion in the ecosystem? (4 marks)

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.....  
.....

7. The diagram below shows a newly germinated seedling with ink marks 2 mm apart. Study it and answer the questions that follow.



(a)(i) Which region would you expect to be longest after 5 days further growth? (1 mark)

.....  
...

(ii) Give a reason for your answer in (a)(i) above. (1 mark)

.....

(b) In which regions would you expect root hairs to appear? (1mark)

.....

(c) Name the structure that protects the region labelled **1**. (mark)

.....

8.(a) Name the structure responsible for intermittent growth in an insect, giving a reason. (2 marks)

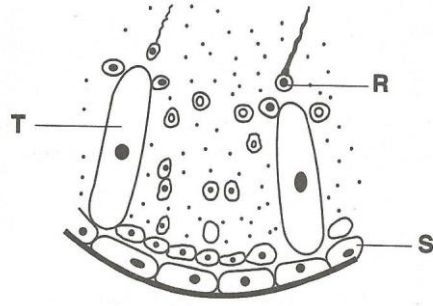
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.....

(b) Name a hormone produced by the corpus allatum in insects. (1 mark)

.....

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9. The diagram below shows part of a seminiferous tubule.



(a) Name the parts labelled **R**, **S** and **T**. (3 marks)

**R**

.....

**S**

.....

**T**

(b) Name the tube into which the seminiferous tubules open. (1 mark)

10. State **two** main events that occur at interphase I. (2mks)

.....

11. Give **two** reasons why gametes are haploid. (2 marks)

.....

12. A person hammered a nail two meters from the ground surface in the stem of a ten metres tall tree. Two years later, the tree had growth taller and thicker. Explain where you would expect to find the nail (2 marks)

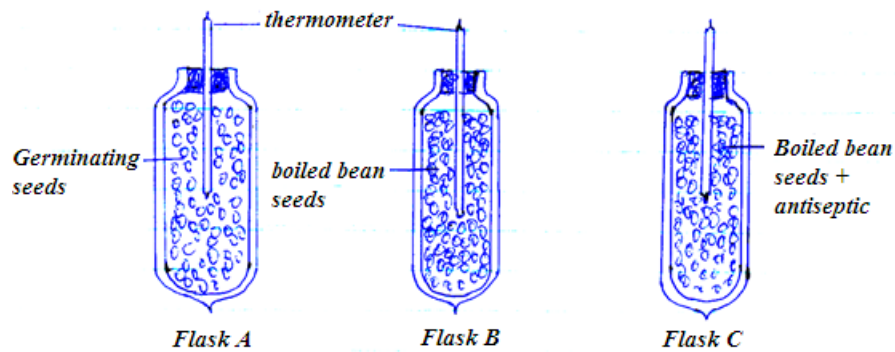
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13. What do you understand by the term **parthenocarpy**? (1 mark)

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14. In an experiment, three thermos flasks were used. In **Flask A**, bean seeds were placed in between moist cotton wool. In **flask B**, boiled bean seeds were used, and in **flask C** boiled bean seeds sprinkled with an antiseptic were used. Temperature readings in the flasks were recorded.



(a) What was the aim of the experiment? (1 mark)

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(b) It was noticed that in flask **B**, there was no temperature increase in the first three days but after this, there was a sharp temperature increased. Explain? (1 mark)

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(c) Why was there no temperature increase in flask **C**. (1 mark)

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(d) Why were thermos flasks used in this experiment? (1 mark)

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15. Between parasitic and predatory modes of feeding. (2 marks)

Similarity \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Difference \_\_\_\_\_

\_\_\_\_\_

16. What is the importance of ecdysis in insects (2mks)

.....

.....

.....

17. Fertilisation occurs when the .....(A)..... of the sperm cell fuses with the.....(B) ..... of the ..... (C) .....

18. State the differences between the male gametes and the female gametes with regard to (a) their size; (b) their structure, (c) their relative numbers.

.....

.....

.....

19. Before fertilisation can occur, the sperms have to travel from the testes to meet an ovum in the female organs. Using the list below, name the organs, in the correct order, through which the sperms will have to pass.

*uterus, sperm duct, oviduct, urethra, cervix, vagina*

.....

.....

20. (a) Explain what is meant by ovulation.

.....

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.....

(b) How often does it occur in humans?

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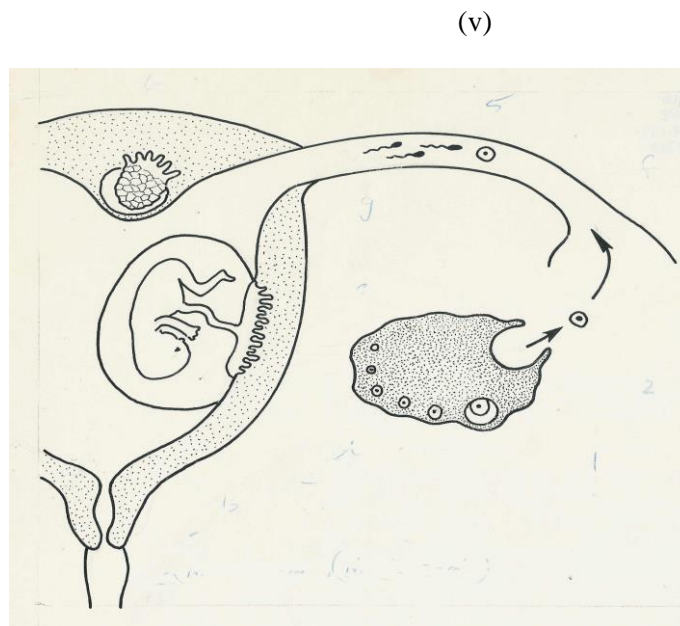
21. Explain why the chance of fertilisation in humans is restricted to only a few days each month.

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.....

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22. The diagram below represents the events leading up to fertilization (v), implantation (vi) and development. In each case name the structures involved and, at the numbers, state briefly what is happening or what has happened previously.



(ii)

(i)

23. Blood from the foetus circulates through the placenta.

(a) What substances pass (i) from the maternal to the foetal blood, (ii) from the fetal to the maternal blood?

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

(b) By what means is the fetal blood circulated through the placenta?

.....  
.....

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24. What is the function of the umbilical cord?

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.....  
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25. What are the possible effects on the foetus if, during pregnancy, the mother

(a) smokes,

.....  
.....

(b) catches rubella?

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

26. Describe the events which lead to the formation of

(a) identical twins,

.....  
.....

(b) fraternal twins.

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.....  
.....

27. At an ante-natal clinic what can

(a) blood tests,

.....  
.....

(b) urine tests reveal.

.....  
.....

28. Place the following events in the correct order for natural childbirth.

*amniotic fluid expelled, placenta expelled from uterus, baby's feet emerge from vagina, abdominal contractions begin, baby's head emerges from vagina, amnion breaks, cervix dilates, contractions of the uterus begin .*

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.....

29. State **three** differences between anthers of insect pollinated and wind pollinated

Flowers

(3mks)

.....  
.....



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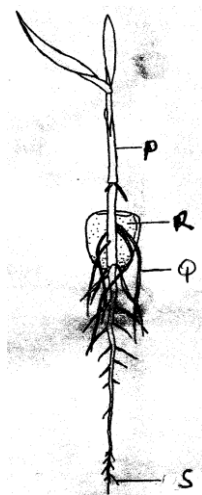
30. (a) What are the advantages of fruit and seed dispersal. (2mks)

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.....

(b) State two characteristics of fruits and seeds dispersed by wind. (2mks)

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.....

31. The diagram below represents a maize seedling



a) Name the parts labelled P and Q (2mks)

P.....

Q.....

b) State the function of the part labelled R. (1mk)

.....  
.....

c) Give three adaptations of the structure labelled S to its functions. (3mks)

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.....  
.....

d) What is the role of air in germination of the above seedlings? (2mks)

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32. A study was carried out to investigate the distribution of certain mammals in a game reserve with three different habitats. The results are shown in the table below.

HABITAT	NUMBER IN HABITAT			
	WILDEBEEST	BUFFALO	RHINOCERAS	LESSER KINDU
GRASSLAND	-	63	13	-
WOODED GRASSLAND	56	87	50	25
FOREST	10	-	50	75

From the above table suggest:

a) i) a suitable method that could have been used to obtain the data from the three habitats. (1mk)

.....

.....

ii) Three reasons why all the mammalian species were found in the wounded grassland (3mks)

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.....

b) From the data, deduce the feeding habits of (2mks)

(i) Wildbeest

.....

(ii) Lesser kudu

.....

c) The vegetation in this game reserve was destroyed by fire. Two weeks after the onset of rains, most of the animals were found in the grassland. Explain.(2mks)

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