NAME……ADM NO….....CLASS……

SIGNATURE……DATE…….

PRE-MOCK 1 2015
BIOLOGY
PAPER 1
(THEORY)
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

Write your **Name, Class** and **Adm no** in the spaces provided above.
Answer **all** the questions in this paper in the spaces provided.

FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1 - 25	80	

1. (a) Define the term 'parthenocarpy'. (1mk)

_____

_____

_____

(b) Name **two** plant growth hormones that promote parthenocarpy. (2mks)

_____

_____

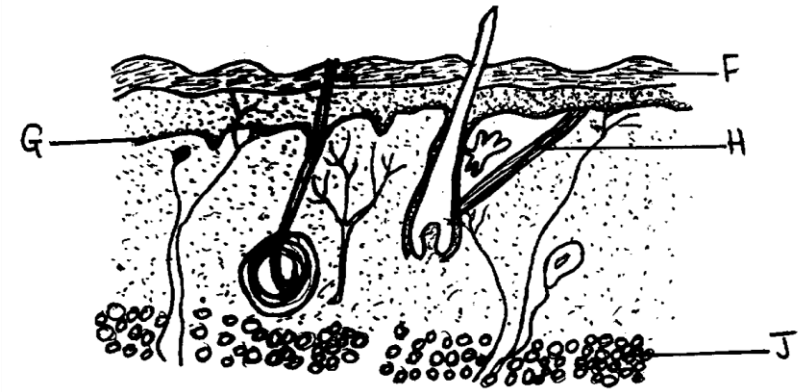
2. Name the organelle that performs each of the following functions in a cell
(i) Protein synthesis. (1mk)

_____

(ii) Transport of cell secretions. (1mk)

_____

3. The diagram below shows a longitudinal section of mammalian skin.



a) Name the parts labelled **F** and **G.** (2mrks)

F _____

G _____

b) State **one** function of each of the parts labelled **H** and **J** (2mrks)

H _____

J _____

4. Other than carbon (IV) oxide, name other products of anaerobic respiration in plants (2mks)

_____

_____

5. (a) Name the fluid that is produced by sebaceous glands. (1mk)

_____

(b) State **two** functions of sweat on the human body. (2mks)

_____

_____

6. (a) State **two** characteristics that are used to divide the phylum arthropoda into classes. (2mks)

_____

_____

_____

_____

(b)Name the class with the largest number of individuals in the phylum Arthropoda. (1mk)

_____

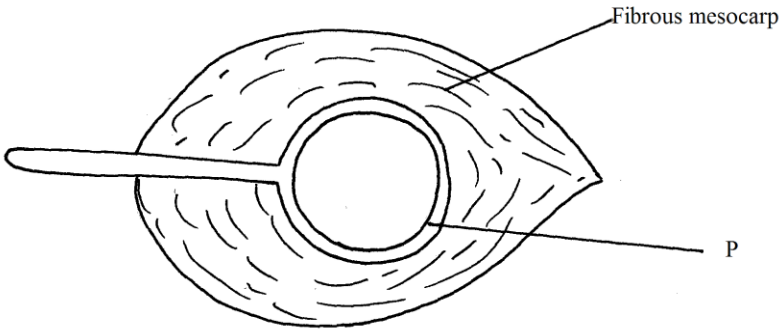
7. Why are people with blood group O referred to as universal donors? (1mk)

_____

_____

_____

8. The diagram below represents a longitudinal section of a fruit



(a) Name structures labeled P (1mk)

_____

(b) Describe two adaptations of the fruit for its mode of dispersal (3mks)

(i) Mode of dispersal

_____

(ii) Adaptation

_____

_____

_____

_____

9. (a) What causes the following diseases?

(i) Diabetes mellitus. (1mk)

_____

_____

(ii) Diabetes insipidus. (1mk)

_____

_____

b) An individual shows the symptoms for diabetes mellitus, how would you determine in the school laboratory whether they are positive for the condition? (3mks)

_____

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10. In an attempt to estimate the number of weaver birds in a small woodland 435 were captured , marked and released. Three days later, 620 were captured 75 of which were marked.

a) What is the name of the sampling method described above? (1mk)

b) Calculate the approximate size of the weaver bird population in the woodland. (2mks)

c) Give one disadvantage of this method. (1mk)

11. Identify the nucleic acid whose base sequence is shown below.

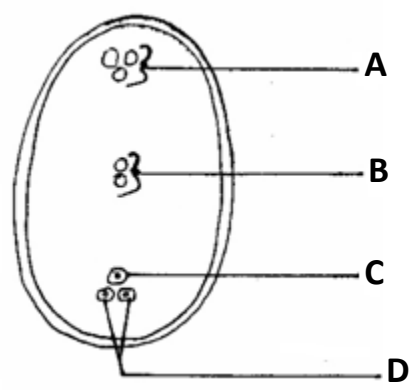
G-A-C-U-A-G-A-C-G

i) Identify the type of nucleic shown above (1mk)

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

iii) Write the base sequence of a DNA strand for the nucleic acid shown above (1mk)

12. The diagram **below** shows a mature embryo sac of a flowering plant.



(a) Name the parts labeled **A** and **B** (2mks)

A_____

B_____

(b) What is the function of the structure labeled B? (1mk)

_____

_____

_____

13. (a) Name the tissues that transport water in plants. (1mk)

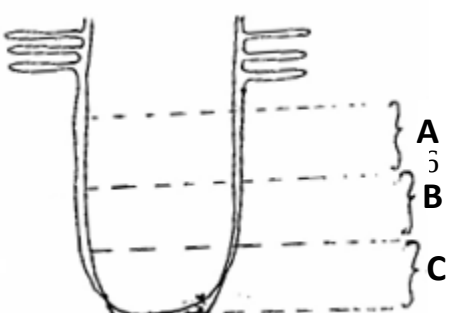
_____

(b) State why the tissue above is said to be dead. (1mk)

_____

_____

14. The diagram **below** shows regions of growth in a root. Study it and answer the questions that follow.



(a) Name the zone labeled **B**

_____ (1mk)

(b) State the function of part **K** (1mk)

_____

(c) State three characteristics of the cells found in zone **C** (3 mks)

_____

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15. The enzymes pepsin and trypsin are secreted in their inactive forms. Explain why they are secreted in these inactive forms. (1mk)

_____

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_____

16. (a) Give two examples of natural selection in action. (2mk)

_____

_____

_____

b) List three features that make man the most dominant species on earth. (3mks)

_____

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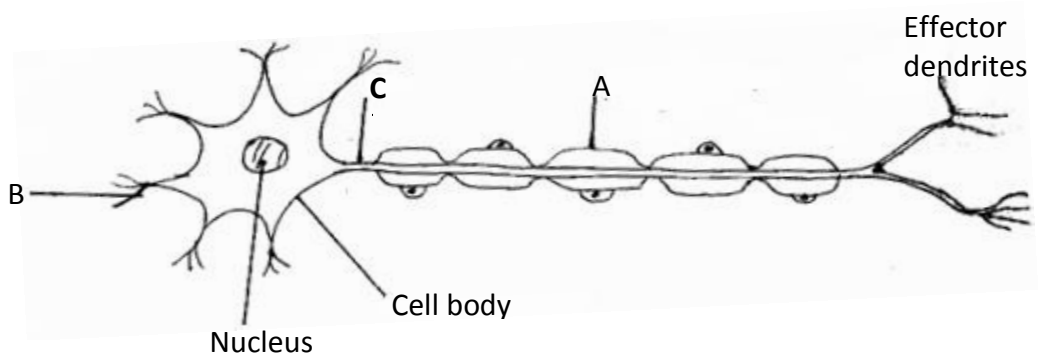
17. Study the diagram **below** of a neurone in human being.



(a) Identify the neurone. (1mk)

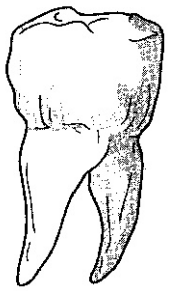
(b) Name the parts labeled.

A _____ (1mk)

B _____ (1mk)

(c) Using an arrow indicate the direction of movement of a nerve impulse along the neuron (1mk)

18. Study the diagram of the mammalian tooth **below** and answer the questions that follow.



(a) Identify the tooth. (1mk)

(b) Give a reason for your answer in (a) above. (1mk)

_____

(c) State **one** adaptation of the tooth to its function. (1mk)

_____

_____

_____

19.a) Name the part of the brain that regulates breathing (1mk)

_____

b) Give two ways through which the body responds to increased concentration of carbon (IV) oxide in the blood (2mks)

_____

_____

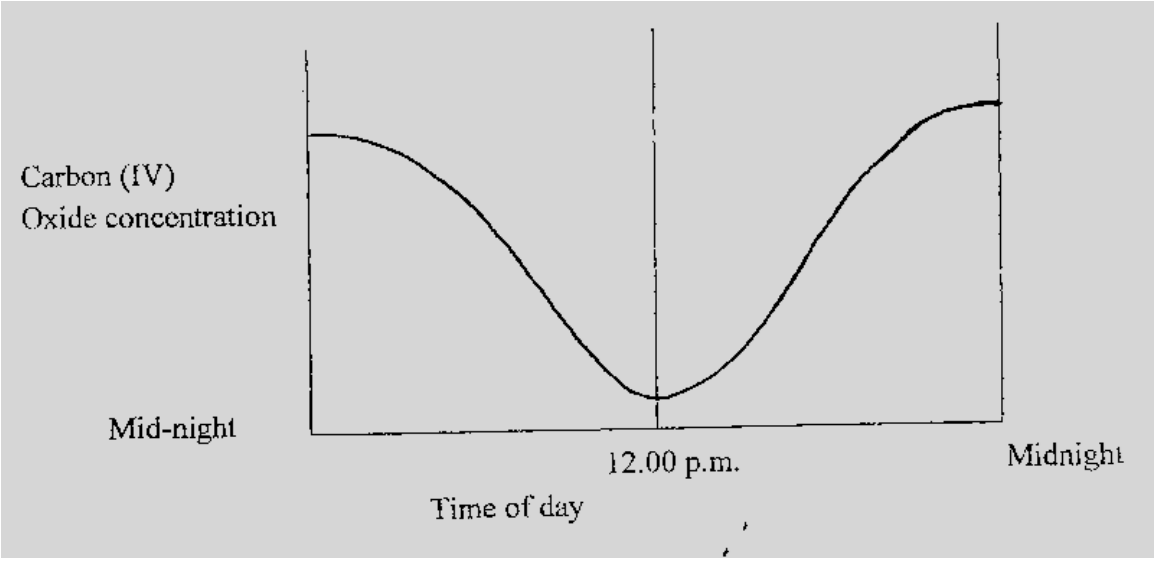
_____

_____

c) Name the structures in pneumatophores through which gaseous exchange occurs. (1mk)

_____

20. The concentration of carbon (IV) oxide in a tropical forest was measured during the course of 24 hours period from mid-night to mid-night.



Account for the results obtained at mid day. (2mks)

_____

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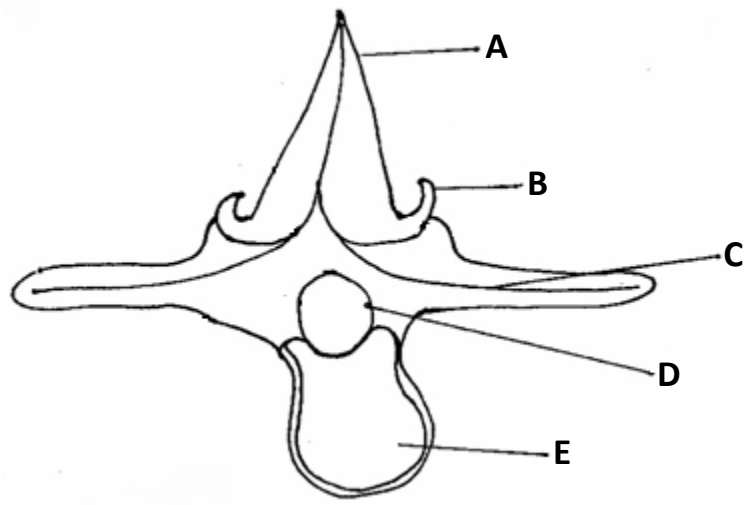
_____

21. The diagram **below** represents the anterior view of a certain vertebra.



(a) With a reason, identify the type of vertebra shown **above**. (2mks)

_____

_____

_____

_____

(b) Name the parts labeled.

(i) **A** _____ (1mk)

(ii) **D** _____ (1mk)

(c) State the function of part **E**. (1mk)

_____

_____

22. (a) State one similarity between diffusion and osmosis (1mk)

_____

_____

_____

(b) State two factors that can reduce the rate of active transport (2mks)

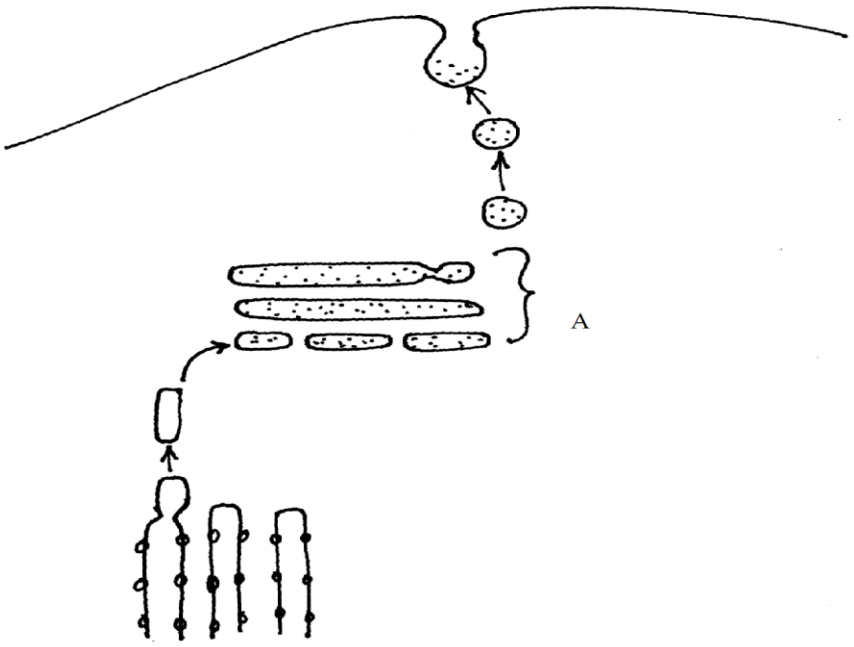
_____

_____

_____

_____

23. Study the diagram below and use it to answer the questions.



a) Identify the organelle marked A. (1mk)

_____

b) Give three functions of the organelle named in (a) above (3mks)

24. It was found that during germination of pea seeds 9.3cm^3 of carbon (iv) oxide was produced while 9.1cm^3 of oxygen was used up.

a) Calculate the respiratory quotient (RQ) of the reaction taking place. (2mks)

b) Identify the type of food substance being metabolized. (1mk)

25. What is the biological importance of the larval stage during metamorphosis (2mks)

231/2
BIOLOGY PAPER 2
(THEORY)
PRE MOCK - MARCH 2015
TIME: 2 HOURS

NAME: …….....CLASS:…….....ADM NO: …….....

SIGNATURE……DATE…….

INSTRUCTIONS TO CANDIDATES:-

- Write your **name** and **adm number** in the spaces provided above.
- This paper consists of **two** sections; **A** and **B**.
- Answer **all** the questions in Section **A** in the spaces provided.
- In section **B**, answer question **6** (**compulsory**) and either question **7** or **8** in the spaces provided after question 8.

For Examiner's Use Only:

Section	Question	Maximum score	Candidates score
A	1 2 3 4 5	8 8 8 8 8	
B	6 7 or 8	20 20 20	
TOTAL SCORE		**80**	

This paper consists of 10 printed pages. Candidates should check to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (40 Marks)
Answer all questions in this section in the spaces provided.

1. In human beings, a **downward pointed frontal hairline** ("windows peak") is a heritable trait. A person with windows peak always has at least one parent who has this trait; where as persons with **frontal hairline** may occur in families in which one or even both parents have windows peak. Using **W** and **w** to symbolize genes for this trait
(a) Determine the F1 generation if a homozygous windows peak male parent is married to a homozygous frontal hairlined female parent (4mks)

(b) State two causes of variations (1mk)

……

……

c) Name two sex linked genetic disorders affecting human females and males (2mks)

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(d) What is genome

……

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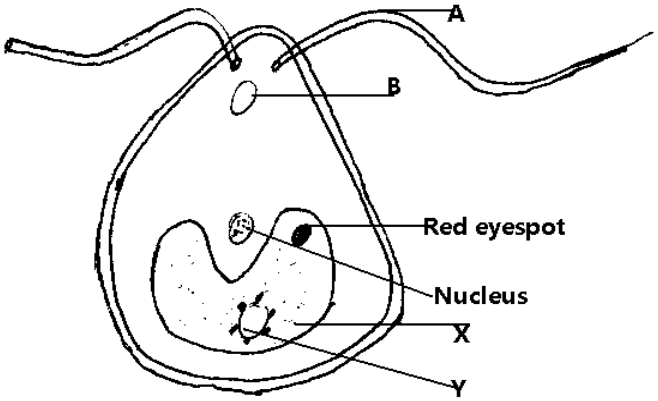
2. The diagram below shows an organism obtained from an aquatic ecosystem



(a) **State** the kingdom in which the organism belongs. (1mk)

……

(b) **Name** the parts labeled (1mk)

B

……

Y (1mk)

……

(c) **State** the functions of the following parts

A (1mk)

……

……

X (1mk)

……

……

Z (1mk)

……

(d)Explain briefly why the organism is described as eukaryotic (2mk)

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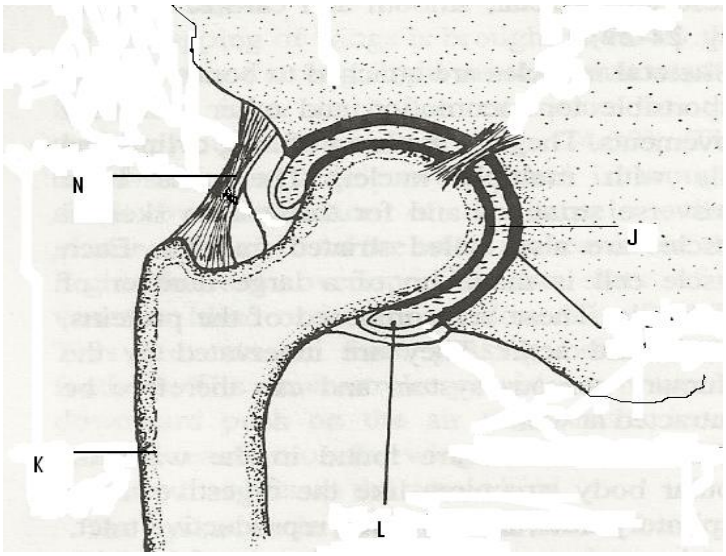
3a) The diagram below shows some of the features of a synovial joint. Study the diagram carefully and answer the questions that follow.



(a) Name the type of synovial joint. (1 mark)

……

(b) Name the parts labeled J, and L (2 marks)

J ……...

L ……..

(c) State **two** roles of the part labeled L. (2 marks)

……

……

……

(d) Suggest **one** advantage of this type of joint. (1 mark)

……

……

b) State how the following tissues are adapted to provide mechanical support in plants (2mks)

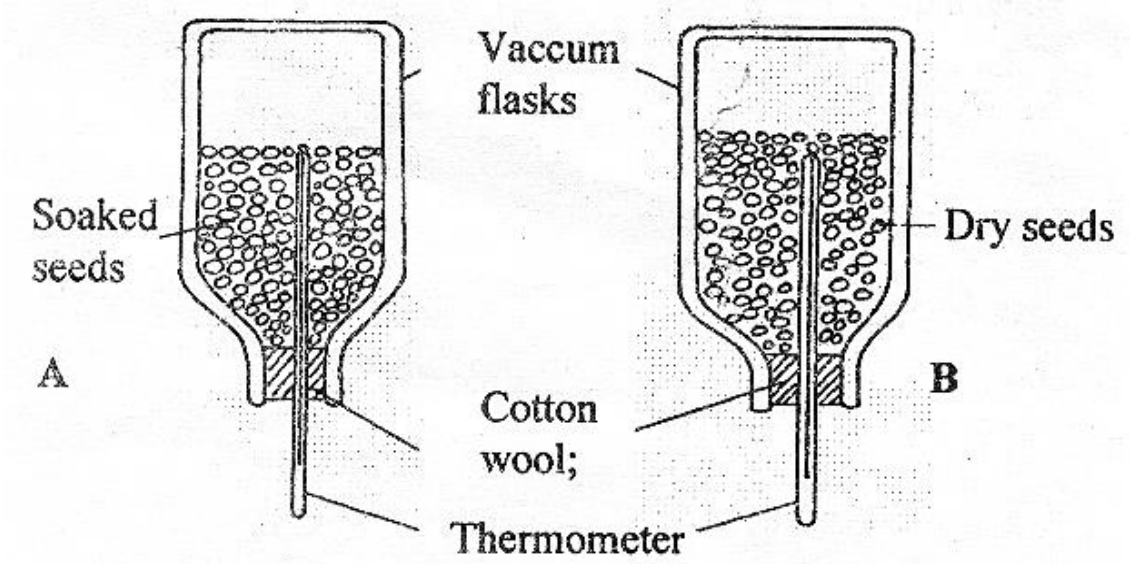
i) Parenchyma

……

ii) Collenchyma

……

4. A student set up an experiment using soaked and dry seeds as shown below



a) State the objective of this experiment (1mk)

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b) State the observations made in each of the flask after 24 hours (2mks)

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c) Account for the observation made in (b) above (2mks)

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d) Suggest why vacuum flasks were used in this experiment (1mk)

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e) What alteration would you make in the set-up to make the results more reliable (1mk)

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f) Why should the seeds be washed with antiseptic/10% formalin? (1mk)

……

5 a) Explain how the following meristematic tissues contribute to growth of higher plants
i) Vascular cambium (2mks)

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……

ii) Cork Cambium (2mks)

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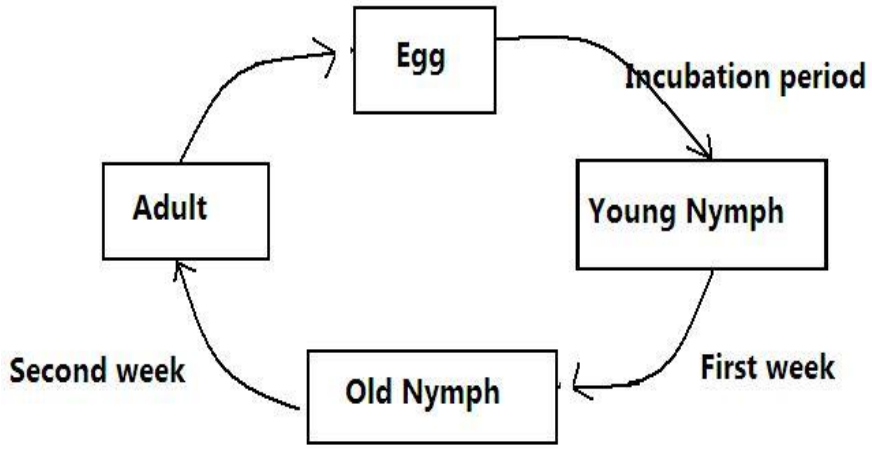
b) The diagram below shows a life cycle of a cockroach



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 hormone in a (ii) above (1mk)

……

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

……

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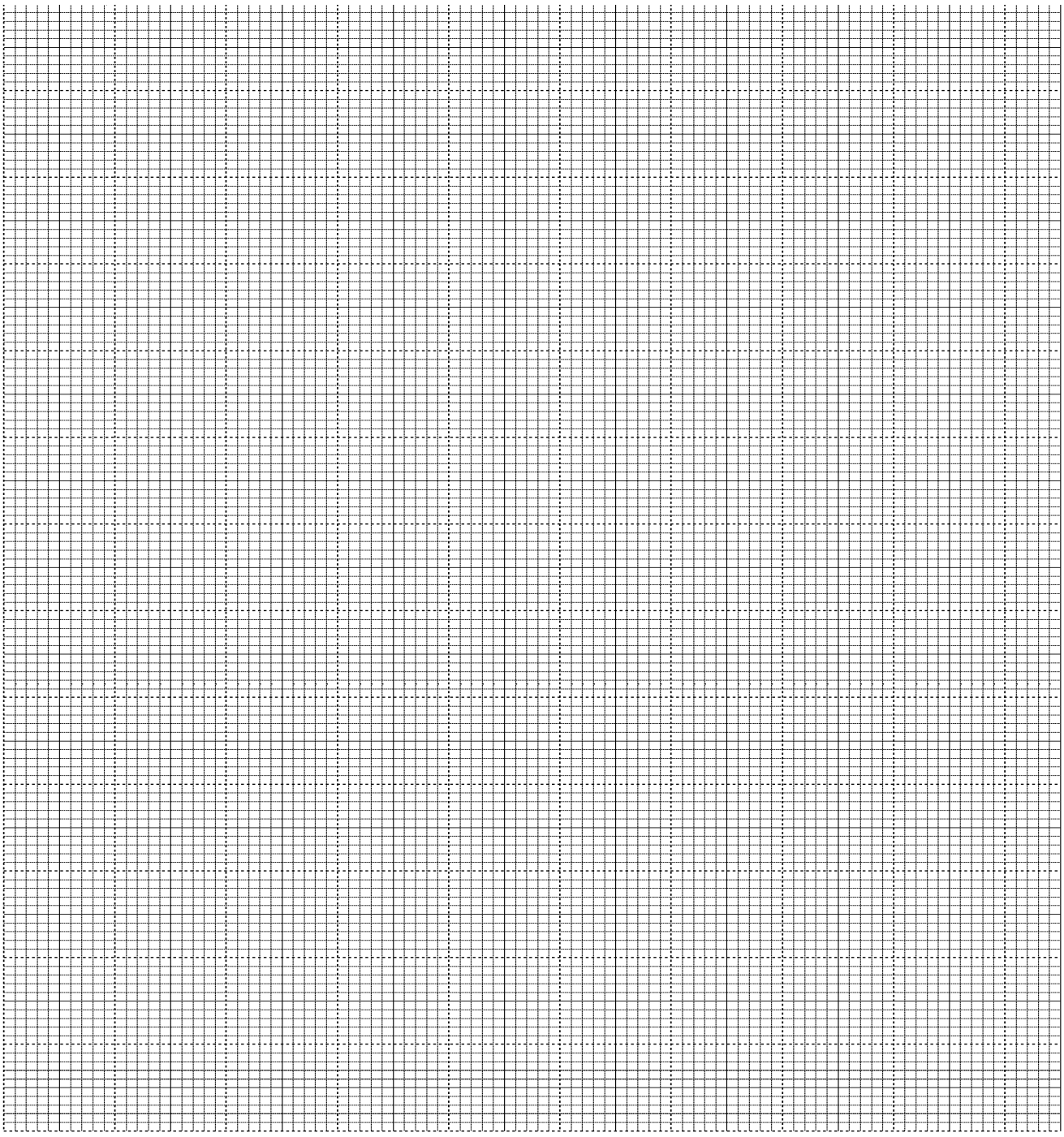
SECTION B (40 Marks)

Answer question 6 (Compulsory) and either question 7 or 8 in the spaces provided.

6. The menstrual cycle is a sequence of events repeated monthly in the female production system. The table below shows the concentration of oestrogen and progesterone hormones and body temperatures of female against time.

Time in days	Oestrogen mg/100cm of blood	Progesterone mg/100cm^3 of blood	Temperature in 0^oc
1	20	0	36.4
2	20.5	0	36.6
3	25	0	36.7
4	27.5	0	36.8
5	30	0	36.7
6	32.5	0	36.6
7	35	0	36.8
8	40	0	36.7
9	48	0	36.6
10	56	0	36.8
11	64	0	36.7
12	72	0	36.6
13	80	0	36.4
14	170	20	36.3
15	140	50	36.6
16	80	80	37.0
17	70	130	37.2
18	65	170	37.0
19	60	160	37.1
20	65	150	37.15
21	130	130	37.2
22	140	110	37.1
23	130	90	37.0
24	100	70	37.1
25	80	50	37.2
26	60	20	37.0
27	20	0	36.4

a). Using the same axis draw graphs of oestrogen and progesterone against time/days (8mks)



b) State the possible event taking place in the uterus during the first week? (1 mark)

……

……

c) State the events taking place in the ovary between day 1 and day 13. (2 marks)

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d) Account for the sudden increase in the progesterone concentration between day 14 and day18. (2 marks)

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e) Account for the change in temperature between day 14 and 17. (1 mark)

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……

f) Account for the change of the curve of progesterone between day 19 and 27. (2marks)

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a) State the function of the following.

(i) Ovary (1mark)

……

……

(ii) Progesterone (1 mark)

……

……

(iii) Oestrogen (1 mark)

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7 a) Describe how the following evidences support the theory of organic evolution: geographical distribution, fossil records and comparative anatomy (10mks)

b) Explain tropic responses in plants and their survival values (10mks)

8 a) Describe the structural adaptations of mammalian heart to its Functions (10mks)

b) Explain the role of osmosis in organisms (10mks)

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NAME: ..... INDEX NO.....

CLASS..... STREAM.....

231/3
BIOLOGY
PAPER 3
(PRACTICAL)
March - 2015
TIME: $1\frac{3}{4}$ HOURS

PRE MOCK – 2015
Kenya Certificate of Secondary Education (K.C.S.E)

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided.
2. You are required to spend the first 15 minutes of $1\frac{3}{4}$ hours allowed for this paper reading the whole paper carefully before commencing your work.
3. Answers must be written in the spaces provided in the question paper.
4. Additional pages should not be inserted candidates may be panelized for recording irrelevant information and for incorrect spellings especially of technical terms.

FOR EXAMINERS USE ONLY.

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1	16	
2	10	
3	14	
SCORE	**40**	

This paper consists of 7printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and that no questions are missing.

1. You are provided with liquids labelled **Q1** and **Q2.** Spare about 10ml of the liquids for part (a) of this question. Using a piece of thread, tie tightly one end of the visking (dialysis) tubing. Open the other end of the tubing and half fill it with liquid **Q1**. Tightly tie this end. **Ensure there is no leakage in both ends**. Immerse the tubing in a beaker containing liquid **Q2**. Leave the set up for at least 30 minutes.

   a) Using iodine and Benedict's solution provided; test for the food substance in liquids **Q1** and **Q2**. Record the procedure, observation and conclusion in the table below.
   (6mks)

LIQUID	**PROCEDURE**	**OBSERVATION**	**CONCLUSION**
A			
B			

After at least 30 minutes remove the visking tubing from the beaker and wash the outside of the tubing thoroughly to remove traces of liquid **Q2**.

b) Using the same reagents, test the food substance in liquid Q1 in the visking tubing. Record your observations and conclusion in the table below. (2mks)

Liquid	Observation	Conclusion
Q1		

c) (i) **Name** the physiological process being demonstrated by this experiment. (1mk)

.....

ii) **Name two** parts of the human body where the process named in (c) (i) above takes place. (2mks)

.....

.....

d) **Account** for the results obtained after carrying a second food test on liquid Q1. (2 mks)

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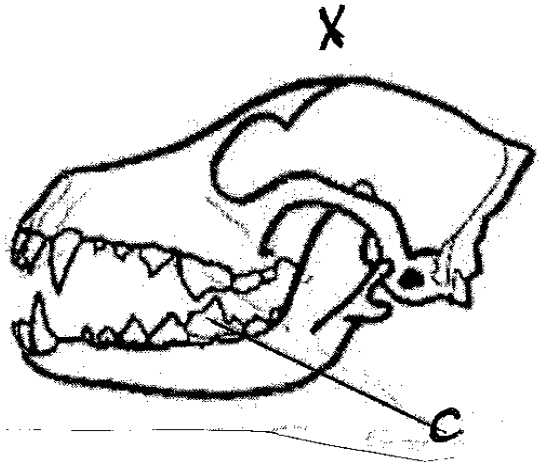
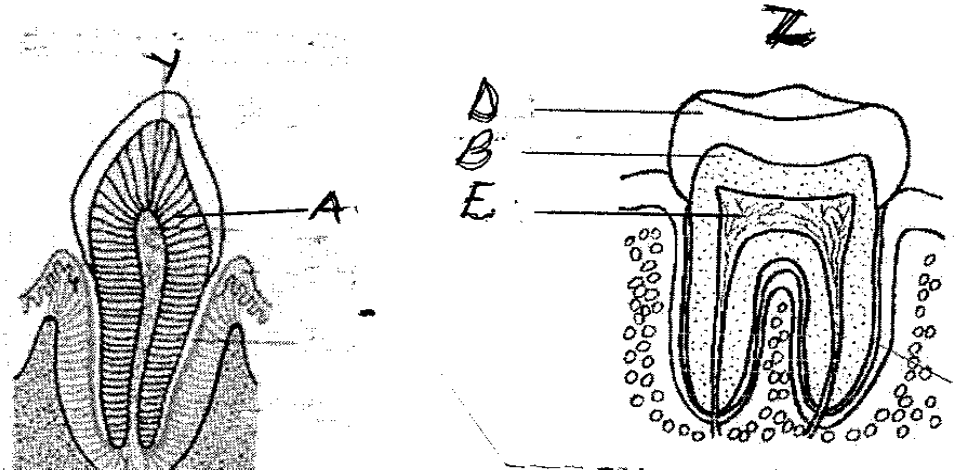
2. You are provided with diagrams of specimens taken from a mammal. Study them carefully and answer the questions that follow.





(a) Identify the diagrams labeled below. (3 marks)

X.....

Y.....

Z.....

(b) State the diet of the animal from which diagram x was taken and give a reason for your answer. (1 marks)

(i) Diet.....

(ii) Reason (2 marks)

……

……

……

(c) Name the parts labeled (3 marks)

A.....

B .....

D.....

(d) How are the following structures adapted to their functions (2 marks)

D

.....

.....

C

.....

.....

(e) State the function of the parts labeled. (2 marks)

.....

.....

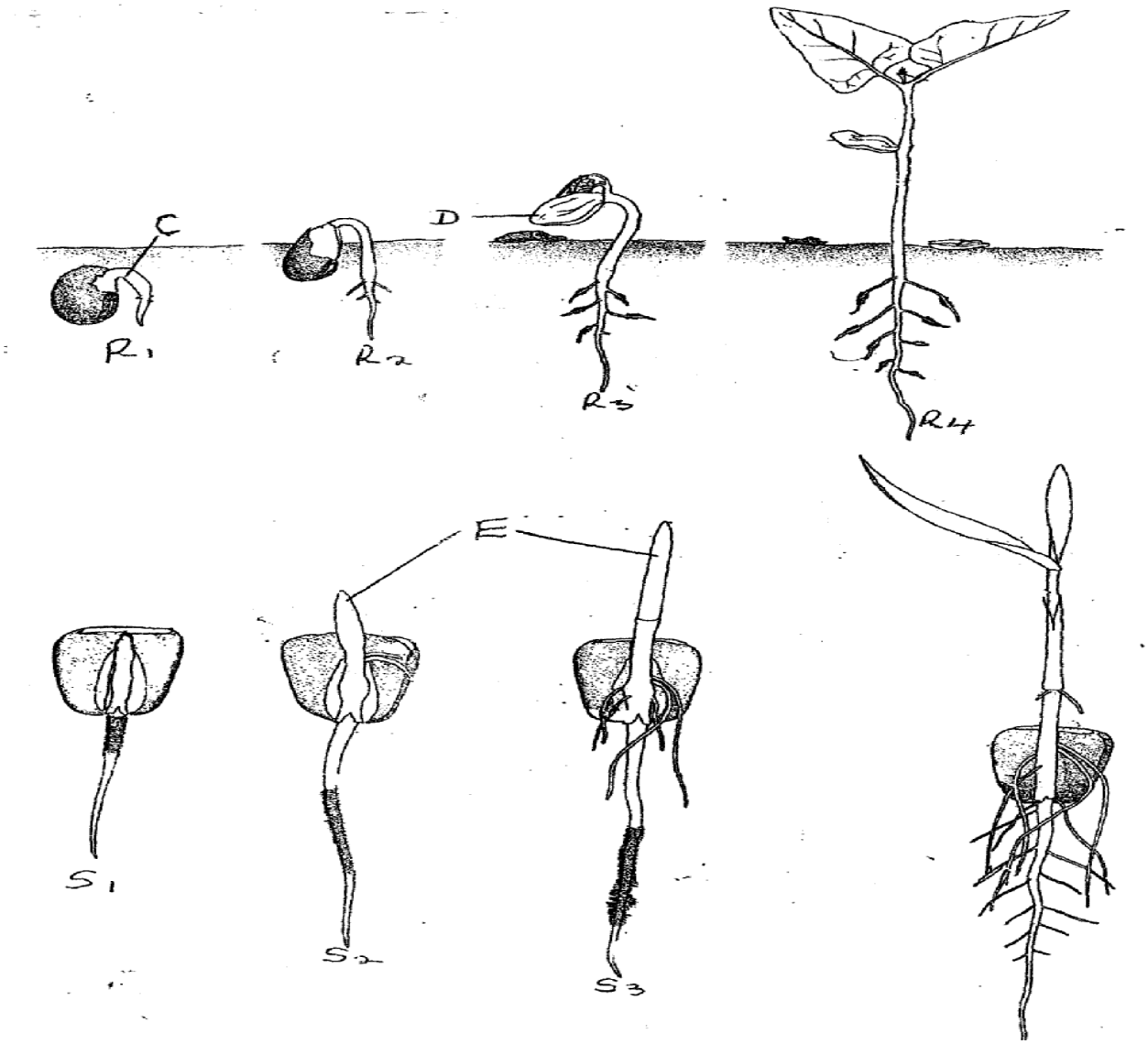
.....

(f) State **one** structural difference between Y and Z (1 mark)

.....

3. Examine the seedling below and use them to answer the question that follow.

a) Name the part labeled C,D, E and state their importance for the seedling.



C: ..... (1mk)

Importance (1mk)

.....

.....

D. ..... (1mk)

Importance (1mks)

.....

.....

.....

(ii) E..... (lmk)

Importance. (lmk)

.....

.....

(b) The R series of seedlings on the roots later in its life:

(i) What is the name of the swelling: (lmk)

.....

(ii) Name the organisms that would be found in the swellings (1mk)

.....

(iii) Explain the relationship that exists between the named organisms and the plant. (1mks)

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(c) (i) State the types of germination exhibited by R series of the seedlings. (1mk)

.....

.....

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

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(d) State any two external factors necessary for germination. (2mks)

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