

NAME: INDEX NO:.....

SCHOOL:

231/1
BIOLOGY
PAPER 1
THEORY
JULY / AUGUST 2007
2 HOURS

KISUMU DISTRICT JOINT EVALUATION TEST (KDJET)
Kenya Certificate Of Secondary Education (KCSE) 2007

BIOLOGY
PAPER 1
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INSTRUCTIONS TO CANDIDATES

- ❖ Write your name and index Number in the spaces provided above
- ❖ Answer all the questions in the spaces provided.

For Examiners Use Only

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE

This paper consists of 12 printed pages. Candidates should check the questions to ensure that all pages are printed as indicated and no questions are missing.

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1. Citrus sinensis is the scientific name of an orange tree.

(a) **Identify** its generic name

(1mk)

.....

(b) **Give one** reason for your answer

(1mk)

.....

2. (a) **List down two** features of the mammalian ileum that increases its surface area. (2mks)

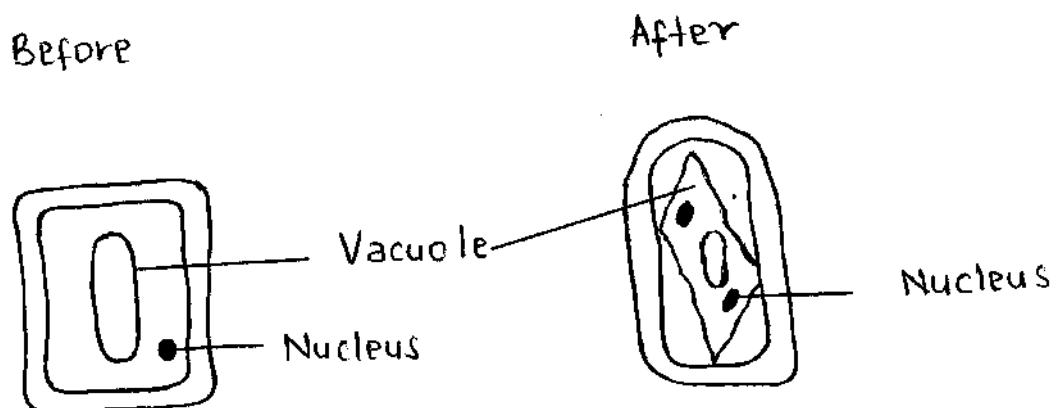
.....

(b) **Name** the part of human gut where digestion of lipids begins.

(1mk)

.....

3. The diagrams below shows the changes in a plant cell when put in a solution T.



(a) **Name** the solution T.

(1mk)

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(b) **Explain** the observation at the end of the experiment. (2mks)

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4. **Name** any **two** practical applications of Genetics in today's world. (2mks)

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5. (a) **Name** the first step of sugar breakdown in cellular respiration. (1mk)

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(b) **Give two** significances of respiratory quotient (R.Q). (2mks)

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6. **Give three** reasons why fossils are important in the study of evolution. (3mks)

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7. (a) **State two** differences between primary and secondary growth in plants. (2mks)

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4

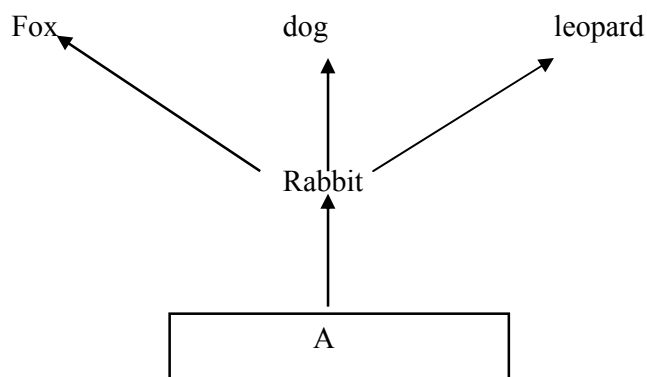
(b) **State** the functions of coleoptile in a maize seedling.

(1mk)

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8. The diagram below show part of a food relationship in an ecosystem.

(a) **Name** the food relationship shown in the diagram.

(1mk)

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(b) **Name** the trophic level occupied by organism A.

(1mk)

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.....

(c) What is the **main** source of energy in the ecosystem shown in the diagram above?

(1mk)

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.....

9. **State** the function of each of the following:

(a) (i) Co-factors.

(1mk)

.....

.....

(ii) Co-enzymes. (1mk)

.....

(b) **Briefly explain** how an enzyme inhibitor affects the activity of an enzyme on a given substrate. (1mk)

.....

10. (a) **Name** the body structures concerned with the following homeostatic functions.

(i) Secretion of vasopressin. (1mk)

.....

(ii) Conversion of glucose to glycogen. (1mk)

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(b) **Give one** symptom of diabetes insipidus. (1mk)

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11. **State** the function of each of the following organelles:

(a) Centrioles (1mk)

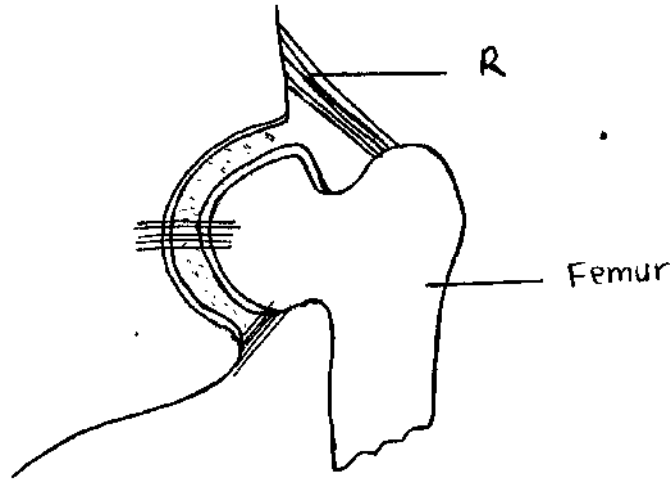
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(b) Golgi body (1mk)

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6

12. The diagram below shows some of the features of a synovial joint.



(a) Name the part labeled R.

(1mk)

.....

(b) (i) State one advantage that the above joint has over a hinge joint.

(1mk)

.....

(ii) Give one disadvantage of the joint shown in the diagram above.

(1mk)

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13. (a) State two reasons why blood flows at a higher pressure in the arteries than in the veins of mammals.

(2mks)

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(b) Why are the xylem tissue referred to as mechanical?

(1mk)

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14. (a) **Give two** advantages of the foetus being surrounded by amniotic fluid during the gestation period. (2mks)

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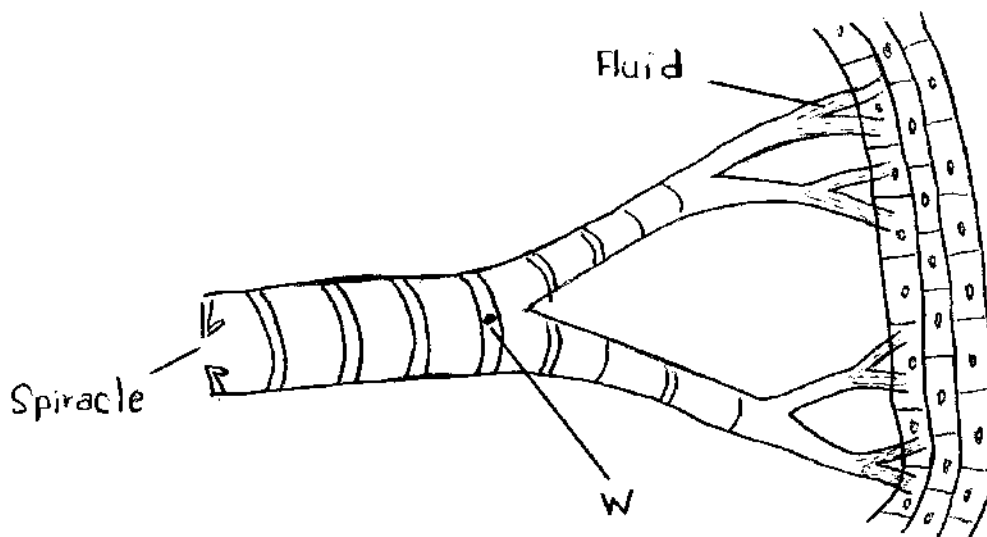
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- (b) Other than its role in menstruation, **state one** other function of oestrogen in the female human body. (1mk)

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15. (a) The diagram below shows the tracheal system in an insect.



- (a) (i) **Name** the structure labeled W. (1mk)

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- (ii) **State** the function of the fluid shown in the diagram. (1mk)

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- (b) **Identify two** structures in higher plants used for gaseous exchange. (2mks)

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8

16. A group of students observed 8 cells across the diameter of the field of view of a light microscope. If the eye piece lens magnification was $\times 5$ and objective lens magnification was $\times 40$. **Work out** the actual diameter of each cell given that the diameter of the field of view was 0.5mm (Give your answer in μm). (5mks)

17. (a) **Define** the term apical dorminance. (2mks)

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(b) **State two** applications of plant hormones in crop production. (2mks)

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18. (a) **Define** the term 'carrying capacity' (1mk)

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(b) **Explain** the role played by each of the following bacteria in the nitrogen cycle.

(i) Nitrosomonas (1mk)

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.....

(ii) Rhisobia. (1mk)

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19. An organism was exposed to different environmental temperatures but its body temperature remained constant at 36.7°C

- (a) **Suggest** the type of organism described in the above statement in terms of temperature regulation. (1mk)

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- (b) **Explain two** changes that would occur in the skin of this organism at room temperature of 40°C . (2mks)

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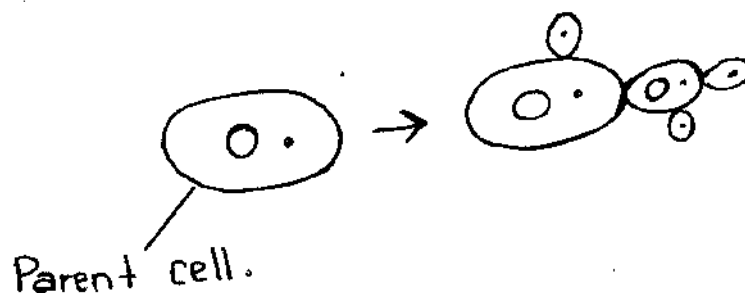
20. (a) **What** is test cross in genetics? (1mk)

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- (b) **Give three** disorders due to gene mutations. (3mks)

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21. The diagram below illustrates a process in a given species of organisms.



(a) **Name** the organism. (1mk)

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(b) **Suggest** the kingdom to which the organism belongs giving one reason.

Kingdom (1mk)

.....

Reason. (1mk)

.....

(c) **Identify** the process that is taking place. (1mk)

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22. (a) **State** the role of Rennin in the stomach. (1mk)

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(b) **Give** a reason as to why cellulose should be included in the human diet. (1mk)

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(c) **What** is the importance of light dependent stage in the process of photosynthesis? (2mks)

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23. (a) **Name** the type of skeleton found in the following organisms:

(i) Earthworm. (1mk)

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(ii) Lady bird.

(1mk)

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(b) Name any **two** structures that provide support in flowering plants.

(2mks)

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24. The table below shows the percentage composition of blood plasma and urine for four substances.

Component substance	Blood plasma %	Urine %
Urea	0.03	2.0
Water	90	90
Plasma proteins	8.0	0
Glucose	0.1	0

(a) **Account** for the absence of plasma proteins in urine.

(1mk)

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(b) Urea concentration being greater in the urine than in the blood plasma.

(1mk)

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25. **Explain two** ways by which the members of the kingdom plantae compensate for their inability to move from place to place in search of food.

(2mks)

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26. **Explain** how the human eye accommodates an image from a far distant object. (2mks)

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27. **Name** the muscles which bring about breathing process in mammals. (2mks)

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