Name…………………………………………… Index No. …………………….

School …………………………………….……...

231/1
BIOLOGY
PAPER 1
(THEORY)
JULY / AUGUST
2 HOURS

TRANS-NZOIA DISTRICT MOCK EXAMINATION-2007
Kenya Certificate of Secondary Education (K.C.S.E)

231/1
BIOLOGY
PAPER 1
(THEORY)
JULY / AUGUST
2 HOURS

Instructions to candidates
- Answer ALL the questions in the spaces provided.

For Examinations use only.

Question	Maximum score	Candidates score
1- 21	80	

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

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1.   State the functions of the cell sap   (2mks)

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2.   A person had his bile duct blocked. Give two physiological problems the person will get

(2mks)

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3.   What do you use in collecting insects in crevices.   (1mk)

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4.   Differentiate between fertilization in animals and double fertilization in plants.   (3mks)

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5.   A scientist came across an animal which lays eggs and has fur and external ears. To what class

was this animal placed?   (1mk)

Class ………………………………………………………………………………………….

6.   Differentiate between divergent and convergent evolution   (2mks)

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7.   State two structural differences between a sensory neurone and a motor neurone. (2mks)

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8.   In Drosophila the gene for wing length is sex-linked. The allele for normal wings is dominant

over the short wings. A short winged male fly was crossed with a homozygous normal winged

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female. The F_1 off springs were then inbred through several generations under ultra- violet light in a laboratory.

After several generations wingless flies appeared amongst the progeny. In addition many eggs laid by the mated females would not hatch.

a) In the space below work out and then state what proportion of the F_1 flies exhibited the dominant phenotype.   (3mks)

(show your working)

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b)From the descriptions given;

i) Name the process that caused the appearance of wingless flies.   (1mk)

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ii) State two general effects of the process named in b(i) above.   (2mks)

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9.   A student set up three thermos flask s, x, y, z containing an equal quantity of beans. Moist germinating beans were placed in flasks x ; boiled beans were placed in Y and boiled beans soaked in antiseptic were placed in flask Z.

Thermometers were dipped into the beans and the flasks were then placed upside down by means of stands. The table below shows the thermometer readings in °c.

	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day
Flask X	20	21	22	24	25	25	25
Flask Y	20	20	21	22.5	26	28	30
Flask Z	20	20	20.5	20	20.5	20	20

a) What biological process is being tested?   (1mk)

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b) Explain why there is no significant heat production in Z after day 5?   (1mk)

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c) What is the significance of flask Z?   (1mk)

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d) Account for the readings in flask Y.   (2mks)

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e) Why were vacuum flasks used instead of glass flasks   (1mk)

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f) What was the reason for boiling the seeds?   (1mk)

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g) Name two by- products that are likely to be produced in flask X   (2mks)

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h) How would you test for the two by-products formed in X   (2mks)

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10.   The diagram below shows the structure of the spinal cord.

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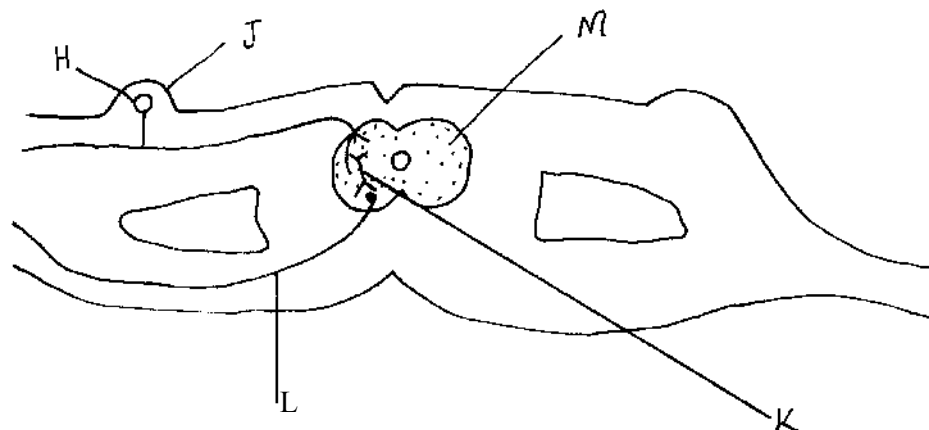
a) Label the parts H,J K and L.   (2mks)

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b) Identify the role of structure M   (1mk)

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c) State the function of the structure L   (1mk)

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d) State three differences between simple reflex action and conditioned reflex action. (3mks)

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11.   What would be wrong with a person whose urine.

i) Contained glucose   (1mk)

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ii) Contained large amounts of proteins   (1mk)

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iii) Had high PH   (1mk)

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12.   The total masses of some organisms in a food chain are shown in diagrams A and B below.

A   B

Total mass of owls   Total mass of mice   Total mass of nuts/seeds

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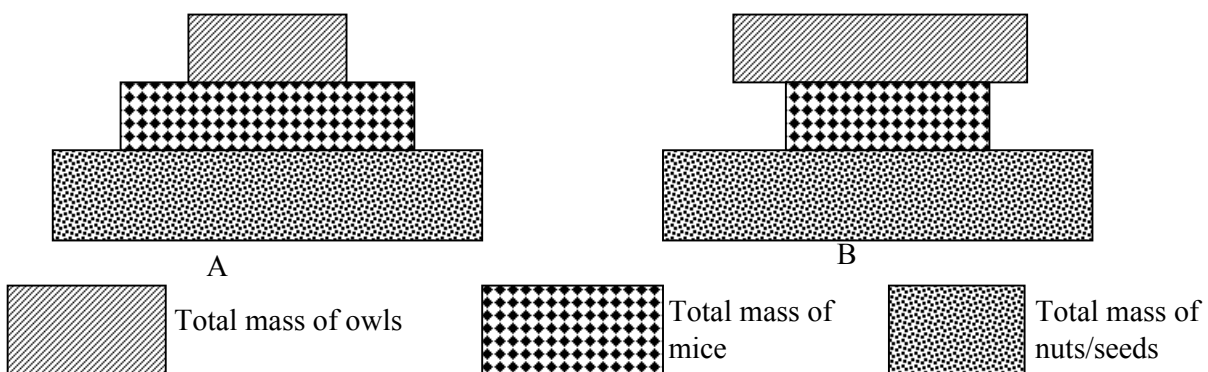
i) State the reasons why the masses shown in diagram B are not likely to be found naturally.

(2mks)

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ii) Using the examples Nuts / seeds – mice- owls, explain how energy losses occur along the

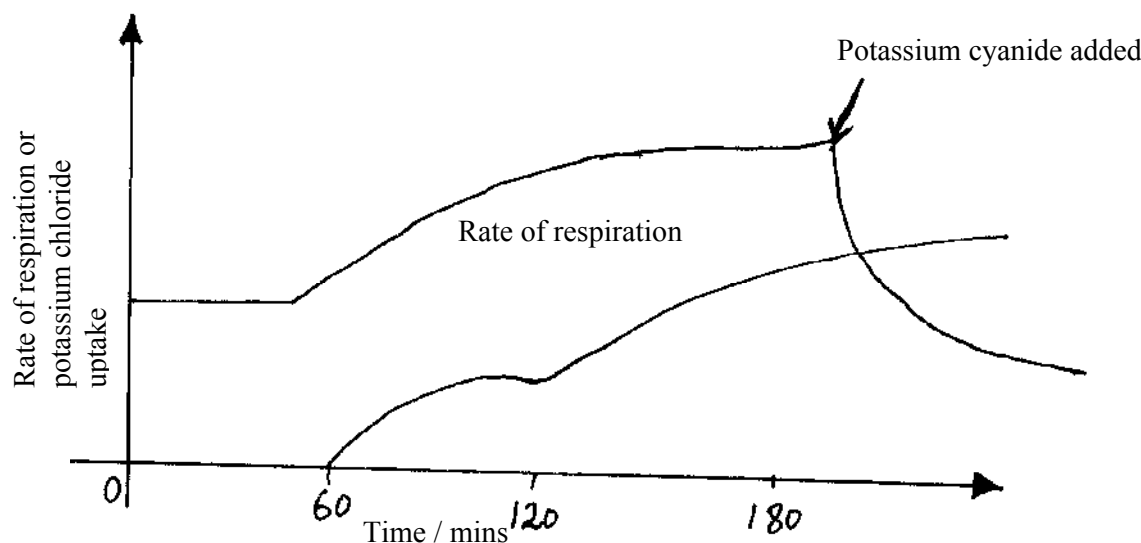food chain.   (3mks)

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13.   The figure below shows the rate of respiration of carrot disks increase when they are

transferred from pure water to potassium chloride.

a) From the results, account for this increase   (2mks)

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b) Why does the rise of KCl content stop when potassium cyanide is added.   (1mk)

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14.	Name two systems that co-ordinate physiological processes in multi-cellular animals.

(2mks)

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15.	The following table shows the quantities in grams of food substances in four different kinds of foods.

	Protein	Fat	Carbohydrate.
Food A	100	50	600
Food B	150	50	500
Food C	50	100	600
Food D	150	50	500

a) Given that 1g of fat supplies twice as many kilojoules of energy than the same amount of carbohydrate or protein which food would produce most energy.			(1mk)

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b) i) State how any two factors determine energy requirements in man

Factors								(2mks)

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How they determine							(2mks)

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ii) How they determine   (2mks)

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16.   After four months of pregnancy the ovaries of a woman can be removed without terminating
pregnancy. However during the first four months of pregnancy the ovaries must remain intact
if pregnancy is to be maintained.

Explain these results   (2mks)

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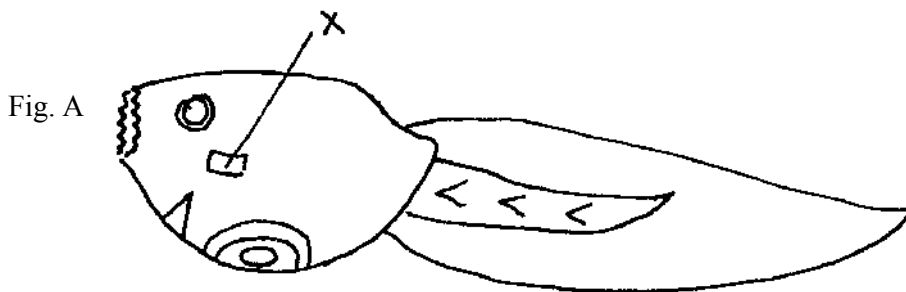………

17.

Fig. A

Figure A represents a stage in the development of a toad. Study it carefully and answer the
following questions.

a) What two visible features adapt it for life in water   (2mks)

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b) Suggest giving a reason the food for the animal   (2mks)

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c) Name three changes in Fig B of the same animal at the next stage of development.

(3mks)

Fig. B

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d) What is the significance of each change in (c) above to the life of the animal.   (3mks)

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18.   a) What are vestigial structures?   (2mks)

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b) State one example of a vestigial structure in man   (1mk)

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19.   List three characteristics that would place man in the class mammalia.   (3mks)

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20.   Chloroquin has been used for many years since its discovery, for the treatment of malaria, but it is no longer effective. Suggest why it is no longer effective.   (2mks)

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21.   What is a neurone, as used in sensitivity?   (1mk)

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END