

Name

Index No.

School

Candidates Sign:

Date:

231/2

BIOLOGY

Paper 2

July / August – 2008

Time: 2 Hours

NYANDO DISTRICT JOINT EVALUATION TEST - 2008

Kenya Certificate of Secondary Education (K.C.S.E)

231/2

BIOLOGY

Paper 2

July / August – 2008

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- This paper consists of Two sections: Section A and B.
- Answer ALL questions in section A in the spaces provided. In section B, question 6 is compulsory. Answer either questions 7 or 8 in the spaces provided after question 8.

FOR EXAMINERS USE ONLY

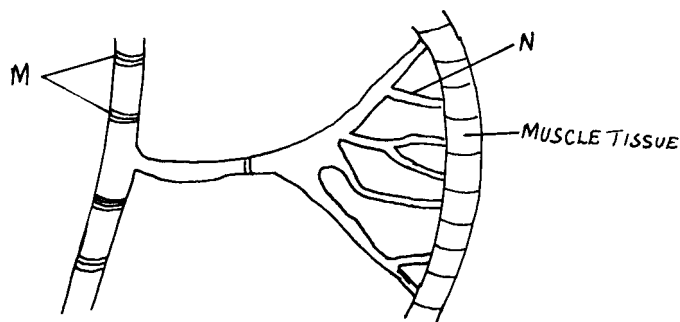
Section	Question	Maximum Score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
TOTAL		80	

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

SECTION A (40 Marks)

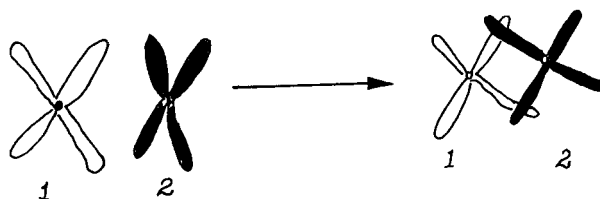
Answer ALL questions in this section

1. The diagram below represents part of a cockroach gaseous exchange system



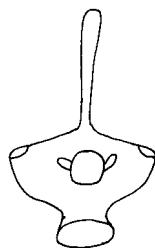
- a) Name the parts labeled M and N. (2 mks)
- b) State the functions of the structure labeled M. (1 mk)
- c) Describe the path taken by carbon (IV) oxide as it diffuses out of the body of a cockroach. (3 mks)
- d) Name the structures in mammalian breathing system that are represented by M and N. (2 mks)

- 2. a) State the role played by these hormones in female menstrual cycle.
 - (i) Follicle Stimulating Hormone (FSH) (1 mk)
 - (ii) Progesterone (2 mks)
 - (iii) Luteinizing Hormone (LH) (1 mk)
- b) Name two structures in plants where male and female gametes are produced. (2 mks)
- c) The diagrams below shows a stage during cell division



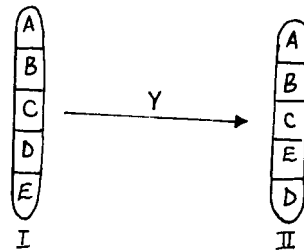
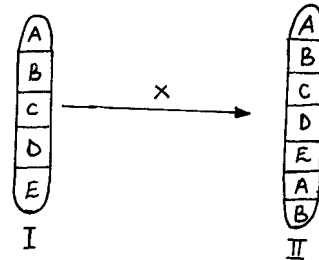
- (i) Name the stage of cell division (1 mk)
- (ii) Give a reason for your answer. (1 mk)

3. A bone obtained from a mammal is represented by the diagram below.



- a) (i) Identify the region in a mammalian body where the bone could have been obtained. (1 mk)
- (ii) State four ways in which this bone is adapted to its functions. (4 mks)
- b) Name three types of skeletons found in the members of the kingdom animalia. (3 mks)

4. In an experiment a variety of garden peas having a smooth seed coat was crossed with a variety with wrinkled seed coat. All the seeds obtained in F₁ generation had smooth seed coat. The F₁ generation was selfed. The total number in F₂ generation was 7324.
- a) Work out the total number of wrinkled seeds in the F₂ generation. (2 mks)
- b) Give an explanation to the absence of plants with smooth seed coat in the F₁ generation. (1 mk)
- c) The following diagrams represent examples of chromosomal mutation.

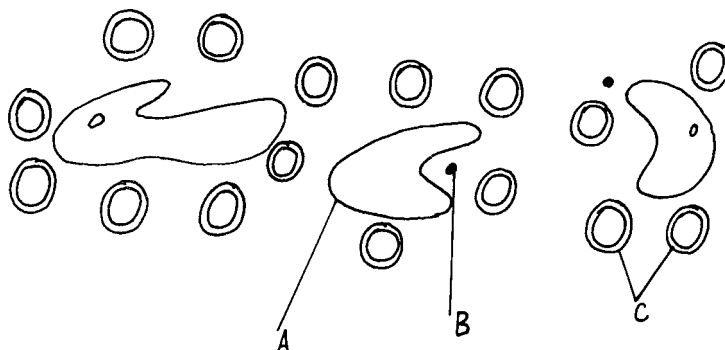


Name the types of chromosomal mutations represented by X and Y. (2 mks)

- d) Other than the above named types of chromosomal mutations, name three other types of chromosomal mutations. (3 mks)
5. In an experiment the table below shows the approximate distribution of blood groups in a sample of 100 people in a population.

Blood group	Frequency	Rhesus +ve	Rhesus -ve
A	26	22	4
B	20	18	2
AB	4	3	1
O	50	42	8

- a) Calculate the percentage of rhesus negative (Rh – Ve) individuals in the population. (2 mks)
- b) Account for;
- (i) The large number of blood group O individuals in a population. (2 mks)
- (ii) The small number of individuals with blood group AB (2 mks)
- c) The diagrams below represents a blood smear on a glass slide.



- (i) State the importance of structure C being in large numbers. (1 mk)
- (ii) Give a reason why structure C would be found in large numbers at high altitude than at low altitude. (1 mk)
- (iii) Name the process by which structure A would engulf structure B. (1 mk)

SECTION B (40 Marks)

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

6. The table below shows the population of a housefly Musca domestica which is parasitized by wasps of species Nasonia spp. The investigation of their population growth pattern was carried out for 70 weeks. In these, experimental space and physical factors were assumed not to be limiting.

Time weeks	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
<u>Musca domestica</u>	40	70	110	260	350	480	400	395	350	40	60	140	250	240	230
<u>Nasonia spp</u>	10	20	30	45	100	200	300	380	410	250	60	20	40	200	280

- a) Using the readings in the table, plot graph on the same axis of population growth of organisms against time. (8 mks)
- b) Account for the growth of;
- (i) Musca domestica between 10th week – 25th week. (1 mk)
- (ii) Nasonia species between 40th week – 50th week. (1 mk)
- c) What is the population of;
- (i) Nasonia spp on the 62nd week. (1 mk)
- (ii) Musca domestica on the 4th week. (1 mk)
- d) Bemex, another parasite of housefly was introduced into the ecosystem. Giving a reason what will be the effect on the population of;
- (i) Housefly Musca domestica (2 mks)
- (ii) Nasonia spp (2 mks)
- e) In estimating the population of Musca domestica in the experiment above, capture – recapture method was used. Describe the procedure which was followed. (4 mks)
7. a) Describe how insect pollinated flowers are adapted to pollination. (14 mks)
- b) Explain how a seed is formed in a flowering plant. (6 mks)
8. Discuss the various evidences which show that organic evolution has taken place. (20 mks)