CROSS COUNTRY EXAM 2014
BIOLOGY
PAPER II
TIME: 2 HOURS
MAY/JUNE 2014

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

INSTRUCTIONS

<u>**FOR EXAMINER'S USE ONLY**</u>

80 MARKS

SECTION A

1. a) What is immunity to a disease   (1mk)

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   b) Distinguish between the following types of immunity

   (i) Natural immunity   (1mk)

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   (ii) Artificial immunity   (1mk)

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2. The figure below represents a transverse section of a root

   i) Name the parts labeled A, B and D   (3mks)

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   ii) State the role of the part labeled C   (1mk)

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3. a) Define the term balanced diet   (2mks)

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b) Explain the importance of each of the following during digestion in human beings
   (i) Teeth   (1mk)

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ii) Saliva   (2mks)

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c) State the role of each of the following in photosynthesis   (3mks)
   (i) Light

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ii) Chlorophyll

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iii) Carbon (IV) oxide

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4. Study the diagram below and answer the questions that follow
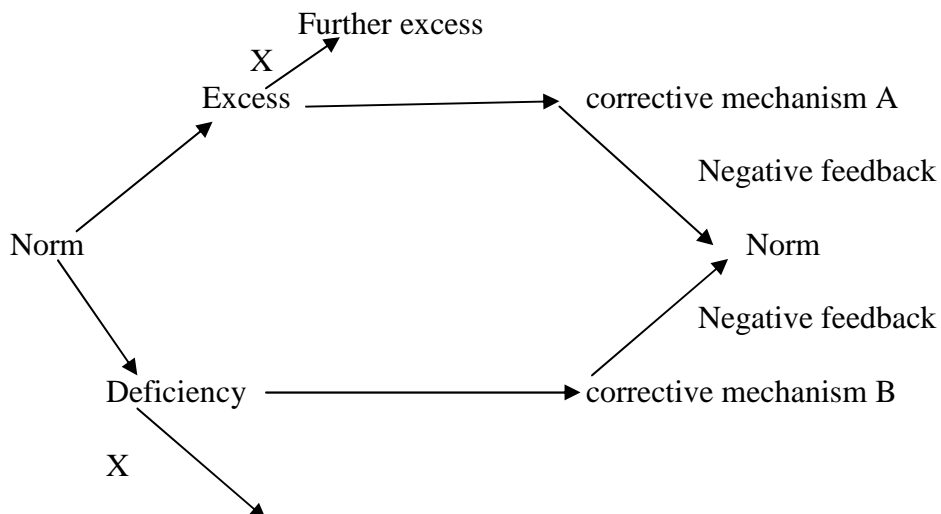
Further deficiency

a) Name the principle labeled X   (1mk)

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b) If the above diagram represented blood sugar regulation
   (i) State the corrective mechanisms carried out at A   (2mks)

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ii) The condition that may result from the further excess   (1mk)

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iii) the hormone that would be responsible for correcting the deficiency   (1mk)

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c) Give the reasons as to why plants have less elaborate excretory systems as compared to
   animals   (3mks)

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5. a) State two effects of air pollution to plants   (2mks)

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b) Name two human activities that cause soil pollution   (2mks)

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c) How is plasmodium adapted to cause malaria (2mks)

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d) State two ways of controlling the transmission of typhoid (2mks)

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SECTION B

6. The data below shows results obtained from a plant species which was planted around a homestead to serve as a hedge. The hedge was divided into part I, II and III. The three parts were treated as indicated in the table and the results collected after 3 years

Part	Treatment	Percentage cover in the 1st 2 metres from the ground	Average width in metres	Average height in metres
I	Untrimmed throughout	3%	0.5	5.0
II	Trimmed twice annually	55%	0.9	3.5
III	Trimmed throughout	85%	1.5	2.5

a) Give three deductions one would draw from the above results (3mks)

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b) Explain the effects of the following on percentage cover; width of hedge and height of plants
(i) Lack of hedge trimming (3mks)

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(ii) Frequent hedge trimming   (4mks)

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c) Using a germinating bean seedling with a 2cm long radical; describe how you would
   investigate the region of growth on the radical   (5mks)

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d) Name the kind of growth curve obtained
   (i) for arthropods when changes in length of body plotted against time   (1mk)

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ii) Give reason as to why this kind of curve is obtained for arthropods   (2mks)

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iii) Name the hormone that inhibits metamorphosis in insects and where it is produced

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7. a) Explain how the tracheal system in arthropods is adapted for gaseous exchange

(10mks)

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b) Explain the mechanism of opening and closing of the stomata using photosynthetic theory

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