NAME: ……..... **SIGNATURE: …….**

S.6 BIOLOGY ASSESSMENT TEST

TIME: 90 MINUTES TOPIC: ECOLOGY

INSTRUCTIONS: Attempt all questions.

1. Figure 5 below shows the immigration and extinction of species on an island.

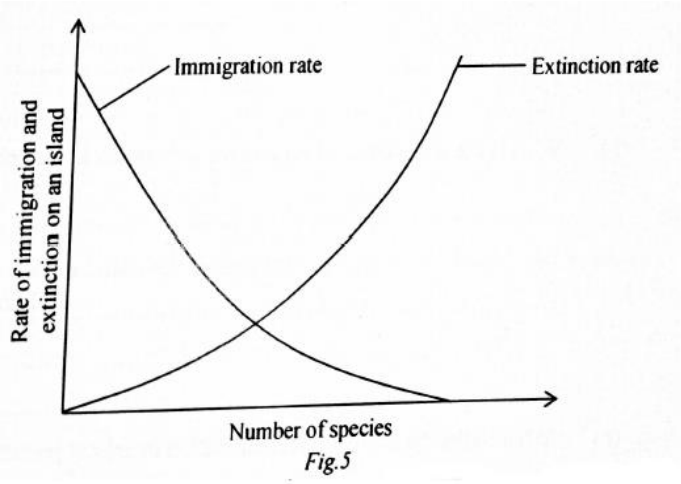

Fig.5

(a). Explain the relationship between the measurable variables on a virgin island. ***(05 marks)***

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(b). From the graph, suggest four factors that could be determining the number of species on the island? ***(02 marks)***

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(c). State three factors that may affect the immigration of new species to the island. ***(03 marks)***

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2. The capture recapture method was used to estimate the population size of dragon flies. The following results were obtained. On the first day 200 dragon flies were captured and marked. Two days later, 350 dragon flies were captured out of which 100 had been marked.

(a) Using this information, estimate the population size of dragon flies. ***(03 marks)***

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(b) State three assumptions, and two precautions which are taken into account while using this method is estimating population size. ***(05 marks)***
Assumptions

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Precautions

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(c) State any three sources of errors in using this method of estimating population size.
(03 marks)

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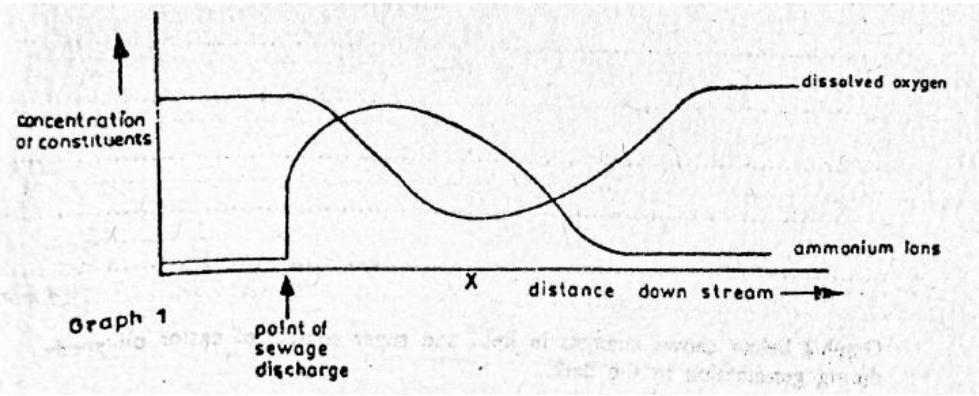
3. Graph 1 below shows the effect of sewage discharge on some chemical constituents of a river at increasing distance downstream from the point of sewage discharge.



(a) Give explanations for the variation in concentration of ammonium ions and dissolved oxygen downstream from the point of sewage discharge.
(i) Ammonium ions ***(03 marks)***

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(ii) Dissolved oxygen ***(03 marks)***

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(b) Describe the effect of the sewage on the ecosystem at distance X downstream. ***(04 marks)***

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4. How do high levels of each of the following gases in the atmosphere affect the environment?
   (a) Sulphur dioxide ***(03 marks)***

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(b) Carbon dioxide ***(04 marks)***

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(c) Chlorofluoro Carbons (CFCs) ***(03 marks)***

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5. Table 1 shows the amount of DDT measured in parts per million (ppm) found in a variety of organisms associated with a fresh water lake.

Where the DDT level was measured.	**Amount of DDT/ppm**
Water	0.0003
Phytoplankton	0.006
Zooplankton	0.004
Herbivorous fish	0.39
Carnivorous fish	1.8
Fish-eating birds	14.3

(a) (i). Calculating how many times the DDT is more concentrated in carnivorous fish compared with its concentration in water. ***(01 marks)***

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(ii). What do the results in a (i) show? ***(01 mark)***

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(b) Explain why the concentration of DDT changes from water to carnivorous fish. ***(03 marks)***

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(c) State two effects of DDT to organisms. ***(02 marks)***

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(d) Explain how a pest sprayed with a pesticide may flourish afterwards. ***(03 marks)***

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6. With examples in each, distinguish between the following terms. ***(08 marks)***
   (i) Threatened species and Endangered species

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(ii) Extinct species and Rare species

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(iii) Indicator species and Keystone species

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(iv) Endemic species and Alien species

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(c) Explain why a number of organisms become endangered ***(04 marks)***

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7. (a) Define the term symbiosis ***(01 mark)***

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(b) State three physiological adaptations of endoparasites ***(03 marks)***

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(c). Giving an example in each case describe other types of symbiotic associations apart from parasitism. ***(03 marks)***

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(d). Outline three main effects of loss of biodiversity in a given area. ***(03 marks)***

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8. (a) What is meant by the term conservation? ***(02 marks)***

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(b). Why do we conserve species? ***(03 marks)***

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(c). Outline the different ways how we can conserve species? ***(05 marks)***

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END!!!!

It's your time to change your future.