**BIOLOGY FORM 3 MARKING SCHEME**

**1)** (i) Biosphere: ***This is the part of the earth and atmosphere inhabited by living organisms.***

***(ii)*** Population: ***Refers to all members of a given species in a particular habitat at a particular time.***

***(iii)*** Synecology: ***This is the study of different species within an ecosystem.***

***(iv)*** Carrying capacity: ***This is the maximum number of organisms of a particular species an area can comfortably support without depletion of th available resources.***

***2. abiotic and biotic***

3.

a) Capture- recapture method. (1mk)

b) MR Fmxsc P 

= 75 620 435x

=3596 weaverbirds. (2mks)

c) The released animals may not mix freely.

Some organism may move in and out of the study area. (1mk)

4.wind

Temperature

Wind

Humidity

Atmospheric pressure

Salinity

5.

Green plants  Grasshoppers  Lizards  Domestic cats. (1mk)

-Green plants  Mice  Snakes  Wild cats (1mk)

Any two

(b) Mice; (1mk)

(b) -Green plants would dry/reduce; primary consumers such as mice and grasshoppers would die/reduce in population;

-Secondary consumers such as lizards, domestic cats and snakes would all reduce

in population/die/migrate;

- Hawks would die/migrate; ***Any 3 (3mks)***

**6.**

(a) From this record of observations, construct a food web. (4 marks)

*Bird species Large fish;*

*Worms Small fish;*

*Insect larvae Planktonic crustaceans;*

Planktoni algae;

***(b) From the food web, isolate and write down a food chain that ends with:-***

**(i) Bird species as a secondary consumer. (1 mark)**

*Planktonic algae Planktonic crustaceans Bird species;*

**(ii) Large fish as a tertiary consumer. (1 mark)**

*Planktonic algae Planktonic crustaceans Small fish Large fish*

*Planktonic algae Insect larvae Small fish Large fish;*

***(c) The biomass of the producers in the lake was found to be greater than that of primary consumers. Explain this observation. (2 marks)***

*Energy is lost as it passes from the producers up the trophic levels; Producers require greater biomass to compensate for the energy losses in order to support consumers depending on it;*

***(d) Using the food web, identify three pairs of organisms that compete for food in the lake and for each case, name the food being competed for. (6 marks)***

*-Bird species and small fish; compete for planktonic crustaceans;*

*-Bird species and small fish; compete for worms;*

*-Bird species and large fish; compete for small fish;*

*-Small fish and worms; compete for insect larvae;*

*-Planktonic crustaceans and insect larvae; compete for planktonic algae;*

***(e) (i) State three ways by which human beings may interfere with this lake ecosystem. (3 marks)***

*-Pollution of water;*

*-Overfishing;*

*-Introduction of new fish species into the lake;*

*Biological control of mosquitoes;*

7.

(a) (i) Producers;

(ii) Tertiary consumers;

(b) Mouse will increase in numbers; Hawks would migrate / look for alternative source of food;/starve;

8. Name the the following process **A, B, C** and **E.** (4mks)

* **A-nitrogen fixation by nitrogen fixing bacteria**
* **B-Feeding**
* **C-ammonification**
* **E-Nitrification**

ii) Name the organisms presented in I above (2mk)

* **Fungi**
* **Decomposing bacteria**

iv)name the group of plants which promote process A take place (1mk)

* **leguminous plants**