THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN FISHERIES SCIENCE AND TECHNOLOGY

MODULE I

FISH BIOLOGY AND AQUATIC ECOLOGY

3 hours

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INSTRUCTIONS TO CANDIDATES

You should have an answer booklet for this examination.
This paper consists of TWO sections; A and B.
Answer ALL the questions in section A and any FOUR questions from section B in the answer booklet provided.
Each question in section A carries 4 marks while each question in section B carries 15 marks.
Maximum marks for each part of a question are as shown.
Candidates should answer the questions in English.

This paper consists of 3 printed pages.

Candidates should check the question paper to ascertain that all
the pages are printed as indicated and that no questions are missing.

SECTION A (40 marks)

Answer ALL the questions in this section.

1. Using a diagram, describe the external features of a typical fin fish. (4 marks)

2. Distinguish between endemic fish species and non-endemic fish species in regard to fish habitat. (4 marks)

3. Define each of the following:

    (a) Ichthydogy; (2 marks)

    (b) fish taxonomy. (2 marks)

4. Describe *cyprinus carpio* using a 7-basic taxa hierarchical system of classification. (4 marks)

5. Outline **four** characteristics that distinguish chondrichthyes. (4 marks)

6. Explain the following breeding behaviours in fish:

    (a) Catadromous behaviour; (2 marks)

    (b) Potamodromous behaviour. (2 marks)

7. State the function of each of the following organs in fish:

    (a) Gas bladder; (1 mark)

    (b) Dorsal fin: (1 mark)

    (c) Pectral fin: (1 mark)

    (d) Adipose fin (1 mark)

8. (a) Define aquatic pollution. (2 marks)

    (b) Explain the effect of thermal pollution on aquatic biota. (2 marks)

9. Name **four** methods used to measure water quality. (4 marks)

10. Distinguish between pelagin fishes and demersal fishes in marine habitats, giving an example in each case. (4 marks)

SECTION B (60 marks)

Answer any FOUR questions from this section.

11.   Explain the use of meristic features in fish taxonomy.   (15 marks)

12.   (a)   Interpret the fish fin taxonomic formula
       D1 IV;D2 I, 5-8:P1 II, 4-7; VII, 3-5; P2 I, 2-5, AII, 5-6; C43 -49.   (8 marks)

       (b)   Describe the characteristics of Osteichthyes that make it to be considered more
              advanced as compared to chrondrichythes and orgnathans.   (7 marks)

13.   Explain five methods used to classify fishes beside Morphological features.   (15 marks)

14.   Explain the use of morphometrics in differentiating fish species.   (15 marks)

15.   Describe the standard measurements used in fish taxonomy.   (15 marks)

16.   Describe non-point source pollution highlighting its causes, effects on aquatic life and
       control strategies.   (15 marks)

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