EXAMINATIONS COUNCIL OF ZAMBIA

Examination for School Certificate Ordinary Level

Biology 5090/6

Paper 6 Alternative to Practical

Thursday 17 NOVEMBER 2016

Additional Information:
Answer paper
Diagram Booklet

Print Version of Braille Paper

Time 1 Hour 15 Minutes

Instructions to Candidates

Write your name, centre number and candidate number on the answer paper.

There are **three (3)** questions in this paper.

Answer **all** questions.

Write your answers on the answer paper.

Information for Candidates

The number of marks is given in brackets [ ] at the end of each question or part question.

Cell phones are not allowed in the examination room.

This question paper consists of 3 printed pages

1 A respiratory system of a *Tilapia* fish was examined using a hand lens and structures were seen enclosed in a chamber.

(a) **(i)** Name the organ involved in gaseous exchange in the chamber. [1]

(ii) Name the **three** parts that make up the organ involved in gaseous exchange in **(a)(i)** above. [3]

(iii) How many gills are on each side of the head of a fish? [1]

(b) Describe the mechanism of inspiration in the fish. [4]

(c) State the Kingdom and the Class of a *Tilapia.*

(i) Kingdom [1]

(ii) Class [1]

(d) Name the **two** types of respiration. [2]

(e) State the respiratory surface in

(i) man. [1]

(ii) insects. [1]

[Total: 15 marks]

2 Bean seeds were put in moist cotton wool at room temperature and periodically moistened. By the fourth day it was observed that the seeds had increased in size and had germinated.

(a) **(i)** Explain why the seeds had increased in size. [1]

(ii) Why was it necessary to periodically wet the cotton wool? [1]

(iii) What is the importance of water to a germinating seed? [2]

(iv) Which part of the seed develops into a new plant after germination? [1]

(v) Apart from moisture, state **two** other conditions needed for germination of seeds. [2]

(b) State the food nutrients which are found in bean seeds. [2]

(c) What is the role of enzymes in germination? [2]

[Total: 11 marks]

3 The femur is a bone in the hind limbs of mammals.

(a) **(i)** Describe the external structure of the femur. [2]

(ii) The bone was measured and its length was 120mm. A drawing of the bone was made. The drawing was measured and its length was 180mm. Calculate the magnification of the drawing. Show clearly all the stages in your calculation. [2]

(b) **(i)** Name the bones of the lower hind limb which connect to the femur. [2]

(ii) What type of joint is found between the femur and

1. the bones of the lower limb? [1]

2. the pelvic bones? [1]

(c) Why is a bone considered a living tissue? [1]

(d) State any **three** functions of the skeleton of a mammal. [3]

(e) State the **three** types of skeleton exhibited by living organisms. [2]

[Total: 14 marks]