



### QUESTION ONE

- a). One of the aims of Biology education is to “Apply the knowledge gained to improve and maintain the health of the individual, family and the community”. How does the achievement of this objective help
- i. the individual? (2 marks)
  - ii. the country? (2 marks)
- b.) Distinguish between
- i. National goals of education and instructional objectives (2 marks)
  - ii. Herbarium and botanical garden (2 marks)
  - iii. Aquarium and vivarium (2 marks)
- c) . Explain one way in which the availability of teaching-learning resources has affected the design of the present secondary school biology curriculum. (2 marks)
- d) . Briefly explain the following:
- i. A teacher needs to plan before instruction. (2 marks)
  - ii. Objectives are very important during the instructional process. (2 marks)
  - iii. A teacher needs to use a variety of teaching/learning resources. (2 marks)
- e. i. State two ways in which mobile phones can be applied in the teaching /learning of biology. (2 marks)
- ii. Give two advantages models have over wall charts as teaching aids . (2 mark)
- f. State two advantages and two disadvantages of essay questions. (4 marks)
- g. Which precautions do you think are necessary to safeguard students against laboratory accidents. (4 marks)

### QUESTION TWO

- a. Give ten reasons why the preparation of a scheme of work is important in the teaching of biology in secondary schools. (10 marks)
- b. State and explain five main factors a teacher should put into consideration when preparing a scheme of work. (10 marks)

### QUESTION THREE

- a. Teaching, evaluation and instructional objectives are important and interdependent facets of the teaching/learning of biology. Explain how the three are related. (6 marks)
- b. Identify three different types of evaluation in relation to curriculum implementation and give the instructional purpose of each. (6 marks)
- c. i. A teacher wants to set a test for Form 1, covering the topics: NUTRITION and THE CELL. The test is to be out of 40 marks, with each of the topics contributing test items totaling 20 marks.

The topic NUTRITION has 10 objectives of which 4 relate to the cognitive level of knowledge, 2 relate to comprehension , 3 relate to application and 1 relates to analysis.

The topic, CELL has 7 objectives, 4 of which relate to knowledge and 3 relate to comprehension.

Using the information provided, construct a simple test grid or table of specification which the teacher can make use of in setting questions for his test. (6 marks)

#### QUESTION FOUR

Imagine you are a teacher of biology in one of the secondary schools in Kenya. According to your scheme of work you are supposed to teach the subtopic Thoracic vertebrae in a single lesson (40 minutes) to a Form Four class.

The subtopic has the following objectives:

The learner should be able to:

- a) Draw and label thoracic vertebrae .
- b) Identify a thoracic vertebra.
- c) Relate the various parts of the thoracic vertebra to their function

Prior to this lesson, you had taught about the cervical vertebrae and given preliminary information about thoracic vertebrae.

Question:

Describe clearly and accurately how you could go about teaching the subtopic so that the stated objectives are achieved. Indicate the teaching aids or resources you would use and approximate times for the different stages of your presentation. (20 marks)

#### QUESTION FIVE

- a) Discuss the factors you would consider in the selection and use of instructional materials in biology lessons. (10 marks)
- b) How can you source for instructional materials for use in a biology lesson? (10 marks)