ELIMU254 TOPICAL REVISION

Kenya CBC | Senior School | Grade 10

Name		**Class**	
School		**Year**	

TOPICAL REVISION QUESTIONS

GRADE 10: BIOLOGY: ALL STRANDS

106 questions in 10 exercises, with all the answers at the back

HOW TO USE THIS BOOK

1. Each subject follows the KICD curriculum design strand by strand. There is one exercise for every sub-strand, in the order it is taught.
2. Do an exercise after the sub-strand is taught, for revision before a test, or as homework and holiday work.
3. Answer in the spaces provided. For a multiple-choice question, circle the letter (A, B, C or D) of the correct answer.
4. The marks for each question are shown in brackets. Show your working where a question needs it.
5. The answers for every exercise are at the back of the book, subject by subject, for the teacher or parent to mark.

SUBJECTS IN THIS BOOK

Subject	Exercises	Questions
Biology	10	106

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BIOLOGY

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BIOLOGY

Revision questions

CELL BIOLOGY AND BIODIVERSITY

Exercise 1: Introduction to Biology (15 marks)

1. The branch of Biology that studies insects is: (1 mark)

A Ornithology **B** Entomology

C Mycology **D** Herpetology

2. Which career is MOST closely linked to Microbiology? (1 mark)

A laboratory technologist **B** architect

C accountant **D** pilot

3. Which is NOT a characteristic of living things? (1 mark)

A growth **B** respiration

C excretion **D** rusting

4. Define Biology and name four of its branches. (3 marks)

5. Explain how the study of Biology helps in (a) agriculture (b) health (c) conservation of the environment. (3 marks)

6. Match each field of Biology to a career: (a) Microbiology (b) Genetics (c) Ecology (d) Human anatomy and physiology. (4 marks)

7. Give two differences between living and non-living things. (2 marks)

Exercise 2: Scientific investigations in Biology (20 marks)

1. A Tullgren funnel collects small animals by: (1 mark)

A attracting them with light from below

B trapping them in water

C driving them away from heat and light into a bottle below

D sucking them in

2. Which apparatus catches crawling insects at night? (1 mark)

A pitfall trap **B** sweep net

C pooter **D** plankton net

3. A hand lens is used to: (1 mark)

A kill specimens **B** preserve specimens

C measure mass **D** magnify small specimens

4. Name the apparatus used to collect each specimen: (a) flying insects (b) small animals in leaf litter (c) crawling insects at night (d) small aquatic animals. (4 marks)

5. Describe how a pooter is used to collect small insects. (3 marks)

6. Explain how plant specimens are pressed and preserved for a herbarium. (4 marks)

7. Name two chemicals used to preserve animal specimens and give one safety precaution when handling them. (3 marks)

8. Give three rules to follow when collecting specimens in the field. (3 marks)

Exercise 3: Cell structure and Specialization (31 marks)

1. The organelle that controls the activities of the cell is the: (1 mark)

A nucleus **B** vacuole

C cell membrane **D** ribosome

2. A cell with many mitochondria is likely to be: (1 mark)

A inactive **B** very active and using much energy

C a dead cell **D** storing starch

3. Which instrument would show the internal structure of a mitochondrion? (1 mark)

A hand lens **B** light microscope

C electron microscope **D** telescope

4. Give three differences between a light microscope and an electron microscope. (3 marks)

5. A microscope has an eyepiece lens of ×10 and an objective lens of ×40. Calculate the magnification. (2 marks)

6. The diameter of the field of view under low power is 2 mm. Ten onion epidermal cells fit end to end across the diameter. Estimate the length of one cell in micrometres. (3 marks)

7. State the function of each organelle: (a) mitochondrion (b) ribosome (c) chloroplast (d) Golgi apparatus (e) lysosome. (5 marks)

8. Give three structures found in a plant cell but not in an animal cell. (3 marks)

9. Explain why iodine solution is used when preparing a temporary slide of onion epidermis, and why the cover slip is lowered at an angle. (2 marks)

10. Explain how each cell is adapted to its function: (a) red blood cell (b) root hair cell (c) sperm cell. (6 marks)

CHALLENGE: harder questions to stretch the best learners

11. A learner changes from the ×10 to the ×40 objective without moving the slide. Which TWO things happen? (1 mark)

A Field of view becomes larger and brighter

B Fewer cells are seen and the field becomes darker

C More cells are seen and the field becomes darker

D Nothing changes

12. A cell measures 25 mm long in a photomicrograph taken at a magnification of ×500. Calculate its actual length in micrometres. (3 marks)

Exercise 4: Chemicals of life (31 marks)

1. The enzyme pepsin works best in the stomach because it needs: (1 mark)

A an alkaline pH

B a neutral pH

C a high temperature

D an acidic pH

2. Which reagent is used to test for starch? (1 mark)

A iodine solution

B Benedict's solution

C DCPIP

D ethanol

3. Proteins are made up of units called: (1 mark)

A monosaccharides **B** fatty acids

C amino acids **D** nucleotides

4. Name the chemical elements in (a) carbohydrates (b) proteins (c) lipids. (3 marks)

5. Describe the test for a reducing sugar and give a positive result. (3 marks)

6. Describe how you would test a food sample for (a) starch (b) protein (c) lipids, giving the positive result for each. (6 marks)

7. A learner tested a fruit juice with DCPIP. The blue DCPIP was decolourised. What does this show? (1 mark)

8. State four properties of enzymes. (4 marks)

9. Explain why the rate of an enzyme-controlled reaction rises from 10 °C to about 37 °C and then falls sharply above 45 °C. (3 marks)

10. A piece of fresh liver is dropped into hydrogen peroxide and froths vigorously. Boiled liver produces no froth. Explain both observations. (3 marks)

CHALLENGE: harder questions to stretch the best learners

11. Amylase was kept at 80 °C for 10 minutes, then cooled to 37 °C and mixed with starch. After 20 minutes, iodine solution gave: (1 mark)

A a brown colour, because 37 °C is the optimum

B a blue-black colour, because the enzyme was denatured

C a brown colour, because cooling reactivates the enzyme

D no colour

12. A learner adds Benedict's solution to sucrose and boils it: it stays blue. She then boils fresh sucrose with dilute hydrochloric acid, neutralises it with sodium hydrogen carbonate and repeats the test: an orange precipitate forms. Explain both results. (4 marks)

ANATOMY AND PHYSIOLOGY OF PLANTS

Exercise 5: Anatomy and Physiology of Plants: Nutrition (28 marks)

1. The dark stage of photosynthesis takes place in the: (1 mark)

A grana **B** stroma

C mitochondria **D** cell wall

2. The oxygen released in photosynthesis comes from: (1 mark)

A water **B** carbon(IV) oxide

C glucose **D** chlorophyll

3. Which factor does NOT directly affect the rate of photosynthesis? (1 mark)

A light intensity **B** carbon(IV) oxide concentration

C temperature **D** the colour of the flower