

TAIDOB COLLEGE

PRE-WASSCE PREPARATORY ASSESSMENT

BIOLOGY

SS3

1ai. Write the chemical equation for each of the following processes:

- i. aerobic respiration
- ii. anaerobic respiration in plants
- iii. anaerobic respiration in animals.

1aii. Explain the process of aerobic respiration.

b. Make a diagram 8-10 cm long of a human lungs and label fully.

c. State two distinguishing features each of the following and give two examples each of;

- i. epiphytes
- ii parasites

d. Give two examples of parasitic plants.

2ai. Explain the two types of cell division.

2aii. Name two sites each in plants and animals where the two types in 2ai occur.

2b. State four differences between the two types of cell division.

2c. Write short notes on the following:

- i viviparity
- ii. territoriality
- iii. seasonal migration

2d. Briefly describe how muscles and bones bring about movement at the elbow.

3a. Explain the term adaptation in relation to the mode of life of an organism.

b. Explain how each of the following structures adapt the organisms that possess them to their modes of life:

- i. succulent leaves in Aloe sp.
- ii. succulent stems and reduced leaves in cactus plants
- iii. short, strong beaks in fowls
- iv. counter Shading in fish
- v. tiny scale leaves on needle-like branches of pine trees .
- ci. Define enzymes.
- cii. State six characteristics of enzymes.
- d. Describe the role of pancreatic juice in the on carbohydrates and proteins in a mammal.
- e. In what form is carbohydrate stored in;
 - i. animals
 - ii. plants

4a. What is population?

4aii. Explain any five effects of overpopulation in a community

4bi. Define asexual reproduction.

4bii. Explain any three types of asexual reproduction which occur in animals, giving two examples in each case.

4c. In a tabular form, outline four differences between sexual and asexual reproduction.

4d. Explain any four functions of the mammalian skeleton and name a

particular part of the skeleton which performs each of these functions.

5a. Explain why an athlete in a race would be given a glucose drink rather than a piece of bread.

5b. Outline the test for starch in a given food substance.

5ci. What is meant by the term Food chain?

5cii. Draw a food chain involving four trophic levels which can be found in a terrestrial habitat.

5d. Explain;

i. the flow of energy through the food chain drawn above
above

ii. how energy in the chain is lost to the environment.

6a. With the aid of annotated diagrams only, outline the water cycle.

bi. Describe an experiment to show that water is conducted in the xylem tissue of flowering plants.

bii. Explain five reasons why water is important to plant.

6c. Describe parasitic nutrition of tapeworm.

6di. Name two organs associated with the human placenta.

6dii. Explain any five functions of the human placenta.

7a. Explain the process of genetic transmission in man.

7bi. Make a large labelled diagram 6-8cm long of the human spermatozoon to show its structure.

7bii. State one function each of any three labeled part.

7ci. Explain the two types of germination of seeds and give three

examples of plant in each type.

7cii. In a tabular form, state four differences between the forms of germination named above.

7d. What is growth?

7e. State two differences each between:

- i. growth in plants and animals;
- ii. metamorphosis in housefly and toad.

8a. Name one appropriate hormone each responsible for the following conditions in plants:

- i. ripening of fruits
- ii. breaking dormancy in seeds
- iii. weed control.

8bi. What is placentation?

8bii. Explain any three types of placentation and give two examples each for each type mentioned.

8c. State two functions each of the following structures:

- i. Cerebellum
- Ii. Cerebrum
- iii. Medulla oblongata

8d. Explain any three eye defect and it's correction.

9ai. What is variation?

9aaii. In a tabular form, state three differences between continuous and

discontinuous variation.

b. State five advantages of variation within a species.

9c. Explain the following terms:

i. sex-linked characters

ii. co-dominance

iii. hybrid vigour

iv. test cross

v. heterozygous

d. Explain the difference between the chromosome number of a gamete and that of the body cell of the same organism.

9e. In chickens, feather color is determined by a gene located on the Z chromosome. The wild-type allele (gray feathers) is dominant to the recessive allele (white feathers). A breeder wants to produce a flock of all gray-feathered hens by crossing a homozygous wild-type rooster with white-feathered hens. Using genetic diagram, determine;

i. the expected genotype and phenotype of the offspring from this cross?

ii. the expected ratio if the breeder used a homozygous white-feathered rooster instead?

10. Specimen B is a Lizard, specimen C is a grasshopper, specimen D is a grass, specimen E is garden soil and specimen F is a branch of cactus plant.

10ai. Mention the habitats of specimens B, C and F. [3 marks]

aii. State three observable features which adapt specimen F to its environment. [6 marks]

10b. Construct a food chain using at least three of the given specimens.

10c. Classify specimens B, C, D, E and F into biotic and abiotic factors.

10d. What is the Significance of specimen E in the ecosystem? [3 marks]

10e. Make a drawing 8 to 10cm long of the lateral view of specimen C and label fully.

