



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF NATURAL RESOURCES AND SPATIAL SCIENCES**

**DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES SCIENCES**

<b>QUALIFICATION: BACHELOR OF NATURAL RESOURCES MANAGEMENT (NATURE CONSERVATION)</b>	
<b>QUALIFICATION CODE: 07BNTC</b>	<b>LEVEL: 7</b>
<b>COURSE CODE: NCB510S</b>	<b>COURSE NAME: NATURE CONSERVATION BIOLOGY</b>
<b>DATE: JULY 2019</b>	
<b>DURATION: 3 HOURS</b>	<b>MARKS: 150</b>

<b>SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	Mrs. Louise Theron Me Gail Morland
<b>MODERATOR:</b>	Mrs. Clarence Ntesa

<b>INSTRUCTIONS</b>
1. Answer ALL the questions. 2. Write clearly and neatly. 3. Number the answers clearly.

**PERMISSIBLE MATERIALS**

1. Examination question paper
2. Answering book

**THIS QUESTION PAPER CONSISTS OF 4 PAGES** (Excluding this front page)

## SECTION A

### QUESTION 1

Give the scientific term for each of the following:

[10]

- 1.1 Cell organelle that prevents wilting in plants.
- 1.2 Feeding on whole or living food, as Amoeba does.
- 1.3 Cell organelle that is responsible for modifying and packaging proteins.
- 1.4 Motile structure used by Trypanosoma.
- 1.5 Gametes of same shape and mobility but differ in size.
- 1.6 Haploid (n) and diploid (2n) bodies in the life-cycle differ in appearance.
- 1.7 A small thick-walled resting cell that forms inside a bacterial cell.
- 1.8 Medication that can kill bacteria without harming a person's own cells (General term!)
- 1.9 Lichens that grow as a thin crust on the surface of rocks.
- 1.10 Sperm producing gametangium.

### QUESTION 2

Complete the following sentences by filling in the missing word(s). Do not re-write the sentences; only write down the letters (a) – (j) and the correct answer for each.

[10]

- ...(a) ... classification is done purely on the basis of appearance. (The old approach).
- ...(b) ... is the scientific study of the diversity of organisms and their evolutionary relationships.
- ...(c) ... is the science of describing, naming and classifying living organisms.
- ...(d)... is the procedure of assigning names to the different kinds and taxa of living organisms.
- ...(e) ... (name of scientist) simplified scientific classification by developing the ...(f)... (system) in which each species is assigned a unique ...(g)... name.
- A ...(h) ... is a group of individuals which is naturally reproductively isolated from other such groups.
- Prokaryotes lack an organized ...(i) ... and membrane bound organelles and have cell walls containing ...(j) ... .

### QUESTION 3

State whether each of the following statements is true or false. If false, re-write the statement to correct it.

[10]

- 3.1 A temperate phage is a deadly virus that brings about rapid lysis.
- 3.2 Rough ER helps to make proteins and contains the ribosomes.
- 3.3 During Telophase the chromosomes become visible and the nuclear membrane and nucleolus disappear.
- 3.4 The edible mushrooms that are sold along the roadsides in Namibia belong to the phylum Ascomycota.
- 3.5 Members of the Bacillariophyta are autotrophs and forms an important component of plankton in the ocean.
- 3.6 During synapsis, homozygous chromosomes connect to form a tetrad.

**SUB – TOTAL (30)**

SECTION B

QUESTION 4

Although viruses differ in size and shape, they all have some characteristics in common. Briefly describe the structure of a “generic” virus – as discussed in class.

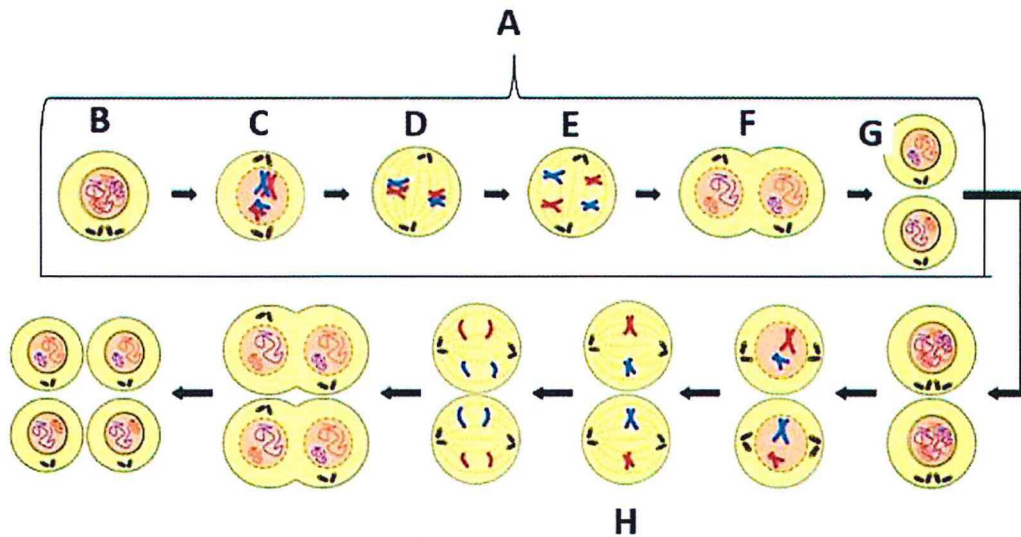
[10]

QUESTION 5

Answer the following questions with regard to the drawing below:

- 5.1 Identify the process indicated by A. (1)
- 5.2 Identify the different steps/phases as indicated by the number B-G. (6)
- 5.3 Explain what happens at each of the following steps/phases:
  - (a) Phase marked C (2)
  - (b) Phase marked D (1)
  - (c) Phase marked E (2)
  - (d) Phase marked F (1)
- 5.4 What is the difference between phase D and phase H? (1)

[14]



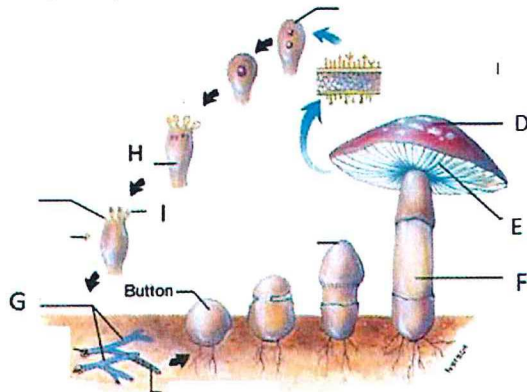
QUESTION 6

- 6.1 Distinguish between the feeding methods of *Euglena* and *Trypanosoma*. (2)
- 6.2 *Plasmodium* makes use of two hosts to complete its life-cycle. Name the two host species. (2)
- 6.3 The opening (not the groove) where food enters the body of Paramecium is known as the ..... (1)
- 6.4 Rhodophyta are harvested for two commercially important cell wall products. Name the two products and provide one “commercial use” for each. (4)
- 6.5 Briefly explain the importance of Dinoflagellates for us as Namibians. (6)

[15]

### QUESTION 7

- 7.1 Write a report on the ecological (8) and economic (4) importance of the Kingdom Mycota. (12)  
Kingdom Mycota includes the Fungi (mushrooms, bracket fungi, yeast, Penicillium, etc).
- 7.2 Explain the importance of "bracket fungi" (4)
- 7.3 Mushrooms e.g. *Agaricus campestris*, reproduce by special spores on the gills of the fruiting body. Provide labels for D-I (only) on the diagram below. (6)



### QUESTION 8

- 8.1 Distinguish between general properties and specific properties relevant to genetics. Make use of examples. (4)
- 8.2 In Guinea pigs straight hair is recessive to curly hair, but a black coat colour is dominant over a white coat colour. (Use the letter "B" for coat colour and the letter "T" for straight vs curly hair).
- (i) If a pure black, straight-haired female mates with a white, curly-haired (pure) male, what will be the genotype and phenotype of the F1 offspring? Also provide the genotypes of both parents. (4)
- (ii) If two of the F1 offspring mate, what is the chance that a straight-haired, white guinea pig will be produced in the F2 generation? First show the genotypes of both parents (F2 generation) and use a Punnett square to determine the phenotypes of the F2 generation. Then indicate the chance that a straight-haired, white guinea pig will be produced. (6)

[14]

SUB – TOTAL (75)

### SECTION C

### QUESTION 9

- 9.1 State the word formula for photosynthesis. (3)
- 9.2 Where do the carbon fixation reactions take place during photosynthesis? (1)
- 9.3 Discuss the inputs and outputs of the light reaction. (4)
- 9.4 State one disadvantage of a plant leaving their stomata open and discuss how the plant solves this problem. (3)
- 9.5 Discuss how temperature and light intensity affect the rate of photosynthesis in plants. (4)

[15]

**QUESTION 10**

- 10.1 The Citric acid cycle is the third stage of respiration. State where stage 3 occurs and name the products and their quantities. (5)
- 10.2 Name the three other stages of respiration. (3)
- 10.3 Discuss how temperature and light availability affect respiration. (4)
- 10.4 Copy and complete the table below comparing the differences between photosynthesis and respiration. (4)

Feature	Photosynthesis	Anaerobic respiration
End products		$C_6H_{12}O_6 + O_2$
Sites within cells involved	Chloroplast	
Principal electron transfer compound		<b>NAD<sup>+</sup></b> is reduced to <b>NADH<sup>+</sup></b>

**[16]****QUESTION 11**

- 11.1 Define diffusion and discuss its importance to life on earth giving one example in nature. (4)
- 11.2 Explain how the number of leaves, the number of stomata, the thickness of the cuticle, humidity and light intensity influence the rate of transpiration. (10)

**[14]****SUB – TOTAL [45]****TOTAL [150]**