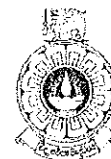


THE OPEN UNIVERSITY OF SRI LANKA  
 CREDIT CERTIFICATE FOR FOUNDATION IN SCIENCE  
 BZF 2501 BIOLOGY 3  
 FINAL EXAMINATION 2018/19



DURATION THREE (03) HOURS

INDEX NUMBER: .....

Date : 23.06.2019.

Time : 1.30pm. to 4.30pm.

Answers to questions in Part I should be given in the question paper itself. Answers to questions in Part II should be given in the answer book provided.

Total No. of Questions in Part I - 02

Total No. of Questions in Part II - 05

No. of pages - 07

**PART I (1 ½ Hours)**  
**Multiple Choice and Structured Essay Questions**  
 Answer ALL Questions

**Part A – Multiple Choice Questions**

Indicate the most appropriate answer with a cross (X) in the cage provided.

1.1) Nastic movements

a	<input type="checkbox"/>
b	<input type="checkbox"/>
c	<input type="checkbox"/>
d	<input type="checkbox"/>

a.) are permanent.

b.) are irreversible.

c.) are caused by internal stimuli.

d.) can also occur in leaves which do not have a pulvinus.

1.2) Which of the following is correct regarding an ecosystem?

a	<input type="checkbox"/>
b	<input type="checkbox"/>
c	<input type="checkbox"/>
d	<input type="checkbox"/>

a.) Living organisms and non-living things in an environment form an ecosystem.

b.) An ecosystem is the basic fundamental unit of ecology.

c.) Most ecosystems are surrounded by clear margins.

d.) Function of an ecosystem is the cycling of raw materials within it.

1.3) Hard wood

a	<input type="checkbox"/>
b	<input type="checkbox"/>
c	<input type="checkbox"/>
d	<input type="checkbox"/>

a.) is found only in angiosperms.

b.) can be found in gymnosperms as well.

c.) have tracheids only.

d.) is always harder than soft wood.

1.4) The modern system of nomenclature was first introduced by

a.	a.) Darwin.
b.	b.) Linnaeus.
c.	c.) Woes.
d.	d.) Whittaker.

1.5) Seed germination is affected

a.	a.) only by external factors.
b.	b.) only by internal factors.
c.	c.) by both of the above factors.
d.	d.) by none of the above factors.

1.6) Fruits and seeds dispersed by animals have

a.	a.) hooks.
b.	b.) spines.
c.	c.) fleshy pericarps in fruits.
d.	d.) all of the above features.

1.7) Flowers

a.	a.) are the reproductive structures in plants.
b.	b.) have petals as the inner most whorl.
c.	c.) have either an ovary or stamens.
d.	d.) are diploid in nature.

1.8) Roots of a plant

a.	a.) can perform only anchorage in soil and absorption.
b.	b.) can sometimes carry out photosynthesis as well.
c.	c.) will not carry out respiration,
d.	d.) are always positively geotropic.

1.9) Epidermal trichomes

a.	a.) are present only in dicot plants.
b.	b.) are sometimes glandular in nature.
c.	c.) often carry out a protective function.
d.	d.) possess all of the above features.

1.10) A difference between *Marchantia* and *Pogonatum* is

a.	a.) <i>Marchantia</i> is dichotomously branched and <i>Pogonatum</i> is not.
b.	b.) <i>Marchantia</i> is a flat thallus while <i>Pogonatum</i> is erect.
c.	c.) <i>Marchantia</i> produces elaters in the sporophyte but not <i>Pogonatum</i> .
d.	d.) All of the above differences are correct.

1.11) *Selaginella*

a	
b	
c	
d	

- a.) has a dichotomously branched heterophyllous sporophyte.  
 b.) does not produce ligules.  
 c.) is homosporous.  
 d.) does not have any of the above characteristics.

1.12) Which of the following statements is **incorrect** regarding vascular tissues?

a	
b	
c	
d	

- a.) All the plants contain vascular tissues.  
 b.) Vascular tissue is composed of the xylem and the phloem.  
 c.) These help in conducting water and food in plants.  
 d.) All the vascular tissues have parenchyma cells.

1.13) A function of parenchyma in plants is

a	
b	
c	
d	

- a.) to provide mechanical strength.  
 b.) to transport water.  
 c.) to act as a packing tissue.  
 d.) absorption of water from soil.

1.14) Transpiration

a	
b	
c	
d	

- a.) is always beneficial to plants.  
 b.) removes water from plants in liquid form.  
 c.) is affected by external factors only.  
 d.) helps plants in upward movement of water and minerals.

1.15) Which of the following statements is **incorrect**?

a	
b	
c	
d	

- a.) Man has a great impact on the climate of the earth.  
 b.) Burning of fossil fuels emits oxygen.  
 c.) Carbon dioxide traps heat energy reflected by earth.  
 d.) Global warming is mainly caused by human activities.

1.16) Tropical rain forests

a	
b	
c	
d	

- a.) are mainly found in the regions close to the equator.  
 b.) are found in Sri Lanka as well.  
 c.) Both of the above statements are correct.  
 d.) The statements a and b are incorrect.

1.17) Vegetative propagation

a	
b	
c	
d	

- a.) is the only mode of propagation of plants.  
 b.) produce daughter plants which are not identical to each other.  
 c.) Both of the statements a and b are correct.  
 d.) Both of the statements a and b are incorrect.

1.18) fungi

a	
b	
c	
d	

- a.) are always parasitic.  
 b.) are always pathogenic.  
 c.) Both the a) and b) statements above are correct regarding fungi.  
 d.) Both the a) and b) statements above are incorrect regarding fungi.

1.19) The causative agent of cholera is a

a	
b	
c	
d	

- a.) bacterium.  
 b.) fungus.  
 c.) virus.  
 d.) protozoan.

1.20) Long day plants

a	
b	
c	
d	

- a.) flower when the day length is shorter than a critical day length.  
 b.) flower when the day length is longer than a critical day length.  
 c.) are not sensitive to the length of the day for flowering.  
 d.) do not have any pigments which stimulate flowering.

1.21) Which of the following phyto-hormones is responsible for seed dormancy?

a	
b	
c	
d	

- a.) Auxins  
 b.) Gibberellins  
 c.) Abscisic acid  
 d.) cytokinines

1.22) Movement of water from soil into the xylem is through

a	
b	
c	
d	

- a.) apoplastic pathway.  
 b.) symplastic pathway.  
 c.) vacuolar pathway.  
 d.) all of the above pathways.

1.23) Phototropism

a	
b	
c	
d	

- a.) is the growth of a plant part towards a light stimulus.  
 b.) is the growth of a plant part away from a light stimulus.  
 c.) is a directional growth in response to a light stimulus.  
 d.) All of the above statements are correct regarding phototropism.

- 1.24) Waste water
- i) can be of domestic, industrial or storm effluents.
  - ii) is used water of a community.
  - iii) should be treated before release to the environment.
  - iv) does not contain any pathogenic microorganisms.

a	
b	
c	
d	

- a.) The statements i) and ii) are correct.
- b.) The statements ii) and iii) are correct.
- c.) The statements i), ii) and iii) are correct.
- d.) All of the statements i), ii), iii) and iv) are correct.

- 1.25) The most suitable statement regarding the reproduction of algae is,

a	
b	
c	
d	

- a.) Algae carry out sexual reproduction by forming spores.
- b.) They show sexual and asexual reproduction only.
- c.) The most advanced mode of sexual reproduction shown by algae is oogamy.
- d.) All of the above statements are correct regarding reproduction of algae.

(50 mins)

### Part B-Structured Essay Question

- 2.a) What is a trophic level of a food chain?

.....

- b) Draw a food chain starting with a producer and ending up with a decomposer, and name each trophic level.

c) Why are the producers important in a food chain?

.....  
 .....

d) Explain the reason for the loss of energy from one trophic level to the next.

.....  
 .....

e) What are the organisms that trap energy from the environment and those that release ultimately to the environment?

.....  
 .....

f) What is the process of trapping energy from the environment?

.....

g) Using an equation show, how the above process occurs.

.....

**(40 Mins)**

**Part II****Essay Type Questions (1 ½ hours)**

Answer any **three (03)** questions in the answer book provided.

- 1.a.) What are meristematic tissues ?
  - b.) Briefly discuss their special characteristics.
  - c.) List the broad categories of meristematic tissues based on their time of origin.
  - d.) Draw a line diagram of a transverse section of a dicot stem and label all the tissues including the meristematic tissues.
- 
- 2.a.) List the different morphological types of viruses giving one (01) example for each type.
  - b.) Draw a diagram of a bacteriophage and label all the parts.
  - c.) Name the main replication cycle of a bacteriophage and briefly describe the stages of this cycle using a suitable diagram.
- 
- 3.a.) Name groups of naturally occurring plant hormones.
  - b.) Write commercial use of the gaseous plant hormone.
  - c.) 'Some plant hormones are used to improve the quality and quantity of yield.' Giving three (03) different examples, discuss this statement.
- 
- 4.a.) What are the diseases transmitted by water?
  - b.) How can these disease transmission be controlled?
  - c.) What are the major sources of water that can be polluted by the pathogens of the above mentioned diseases.
  - d.) Describe briefly the steps used in large scale purification of water.
- 
5. Write short notes on any **three (03)** of the following.
- a.) Advantages and disadvantages of tissue culture
  - b.) Guttation
  - c.) Genetic engineering used in agriculture
  - d.) Importance of cyanobacteria
  - e.) Deserts

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