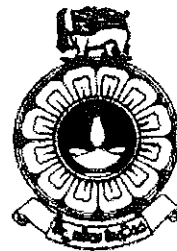


**The Open University of Sri Lanka**  
**Faculty of Natural Sciences**  
**Advanced certificate in Science Programme**



<b>Department</b>	<b>: Foundation Academic Unit</b>
<b>Level</b>	<b>: Level 2</b>
<b>Name of the Examination</b>	<b>: Final Examination 2020/21</b>
<b>Course Title and - Code</b>	<b>: Biology 3 BYF 2513</b>
<b>Academic Year</b>	<b>: 2020/21</b>
<b>Date</b>	<b>: 08.12.2021</b>
<b>Time</b>	<b>: 1.30pm-4.30pm</b>
<b>Duration</b>	<b>: 03 Hours</b>

**General Instructions**

1. Read all instructions carefully before answering the questions.
  2. This question paper consists of 07 questions in 08 pages.
  3. All questions carry equal marks.
  4. Answer for each question should commence from a new page.
  5. Draw fully labelled diagrams where necessary
  6. Involvement in any activity that is considered as an exam offense will lead to punishment
  7. Use blue or black ink to answer the questions.
  8. Clearly state your index number in your answer script
-

Index No.....

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.

**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) *Selaginella*

a.	<input type="checkbox"/>	a) produces roots directly from the stem.
b.	<input type="checkbox"/>	b) produces ligules.
c.	<input type="checkbox"/>	c) is homosporous.
d.	<input type="checkbox"/>	d) exhibits all the above characteristics.

1.2) The function of collenchyma is to

a.	<input type="checkbox"/>	a) provide mechanical support.
b.	<input type="checkbox"/>	b) act as a packaging tissue.
c.	<input type="checkbox"/>	c) conduct water.
d.	<input type="checkbox"/>	d) protect the other tissues.

1.3) Pollination by animals

a.	<input type="checkbox"/>	a) is a process which has developed with the evolution of insects.
b.	<input type="checkbox"/>	b) is more efficient than wind pollination.
c.	<input type="checkbox"/>	c) is carried out by bats as well.
d.	<input type="checkbox"/>	d) shows all the above features.

1.4) In cymose inflorescences

a.	<input type="checkbox"/>	a) the young bud is at the base.
b.	<input type="checkbox"/>	b) the young bud is at the apex.
c.	<input type="checkbox"/>	c) the axis can grow further.
d.	<input type="checkbox"/>	d) an indeterminate growth is seen.

1.5) Modified roots

a.	a) carry out storage of food.
b.	b) carry out photosynthesis.
c.	c) absorb moisture from the atmosphere.
d.	d) carry out all the above functions.

1.6) An example of a permanent complex tissues is

a.	a) the parenchyma tissue.
b.	b) the collenchyma tissue.
c.	c) the epidermal tissue.
d.	d) the sclerenchyma tissue.

1.7) The guard cells

a.	a) are present all over the plant.
b.	b) contain chloroplasts.
c.	c) are always accompanied by subsidiary cells.
d.	d) have large inter-cellular spaces.

1.8) The phytochromes of plants

a.	a) are the photoreceptors in plants.
b.	b) are sensitive to the blue light of the spectrum.
c.	c) are carbohydrate molecules.
d.	d) are important for flowering in long-day plants only.

1.9) If a farmer wants to delay leaf senescence and abscission of leaves, the hormones he should use are,

a.	a) cytokinins and auxins.
b.	b) cytokinins and Gibberellins.
c.	c) auxins and ethylene.
d.	d) cytokinins and ethylene.

1.10) What is **incorrect** regarding guttation?

a.	a) Plants lose water as liquid.
b.	b) This process occurs mainly during day time.
c.	c) Water loss is through special structures called hydathodes.
d.	d) Root pressure facilitates this process.

1.11) An ecosystem is composed of

a.		a) living organisms in an environment.
b.		b) non living things in an environment.
c.		c) the interaction between living and non living.
d.		d) all of the above.

1.12) The organisms obtaining energy in the chemical bonds of organic molecules are called,

a.		a) autotrophs.
b.		b) parasites.
c.		c) heterotrophs.
d.		d) predators.

1.13) Soil is composed of

a.		a) weathered rock fragments.
b.		b) highly altered soil mineral particles.
c.		c) organic matter and living organisms.
d.		d) all of the above.

1.14) A food chain

a.		a) consists of food webs.
b.		b) shows energy flow within biotic component of an ecosystem.
c.		c) always starts with a herbivore
d.		d) ends with a prototroph.

1.15) An example of a biome established due to temperature variation is

a.		a) a tropical rain forest.
b.		b) a temperate rain forest
c.		c) a desert.
d.		d) all of the above.

1.16) Nastic movements are

a.		a) are permanent.
b.		b) are irreversible.
c.		c) can occur in leaves not having pulvini.
d.		d) are caused by internal stimuli.

1.17) Which of the following is the **incorrect** statement?

a.	
b.	
c.	
d.	

- a) Man has made a great impact on the climate.  
 b) Human activities are the main cause of global warming.  
 c) Burning of fossil fuels emit oxygen.  
 d) Heat energy reflected by earth is trapped by carbon dioxide.

1.18) Which of the following is **correct** regarding vascular bundles?

a.	
b.	
c.	
d.	

- a) Vascular bundles are present in all plants.  
 b) Vascular bundles contain only xylem and phloem cells.  
 c) Main function of the vascular bundle is transport of water and food.  
 d) All the vascular bundles have bundle sheaths.

1.19) Causative agent of influenza and Covid 19 is a

a.	
b.	
c.	
d.	

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

1.20) Seed germination of a forest tree is triggered by,

a.	
b.	
c.	
d.	

- a) oxygen and temperature.  
 b) water.  
 c) light conditions.  
 d) all of the above.

1.21) Fungi

a.	
b.	
c.	
d.	

- a) are always beneficial to man.  
 b) are found only in soil.  
 c) show only heteromorph mode of nutrition.  
 d) always cause diseases.

1.22) Examples of unilocarpellary dehiscent fruits are

a.	
b.	
c.	
d.	

- a) a follicle and a capsule.  
 b) a follicle and a legume.  
 c) a siliqua and a capsule.  
 d) a legume and a siliqua.

1.23) Aeration step in large scale water purification leads to

a.	
b.	
c.	
d.	

- a) oxidation of undesirable substances in water.
- b) improvement of water quality.
- c) removal of undesirable gases from water.
- d) all of the above.

1.24) An example of a beneficial use of microorganisms in agriculture is

a.	
b.	
c.	
d.	

- a) the use of microbes in pest control.
- b) the use of microbes as bio-fertilizers.
- c) the use of microbes in genetic engineering in agriculture.
- d) seen in all of the above.

1.25) The Pfizer vaccine used to control Covid 19 contains,

a.	
b.	
c.	
d.	

- a) a killed virus.
- b) a toxins.
- c) antibodies.
- d) none of the above.

(100 Marks)

**Part B – Structured Essay Question**

2a) Draw a regular and complete flower to show its important characters.

b) State the most important parts of a flower and mention one functions of each part.

Floral part

Function

.....

.....

.....

.....

.....

.....

.....

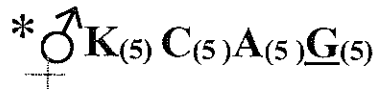
.....

c) What is referred to as the aestivation of s flower?

.....

.....

d) Describe the flower with the following floral formula



e) Flowers are adapted for efficient pollination. Describe how a wind pollinated flower is adapted for this process.

f) Give an example for an economically important wind pollinating plant.

(100 Marks)



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

Answer any three (3) questions using the answer book provided.

- 1a.) Differentiate between sexual and vegetative reproduction in plants.
- b.) 'Plants propagated through vegetative reproduction are less adapted to the environment.'  
Give reasons.
- c.) Describe methods of vegetative reproduction applied on plants by man.
- d.) Micropropagation is an artificial mode of vegetative propagation.  
Describe major steps in micropropagation.

- 2a.) Draw a line diagram of a transverse section of primary a dicot stem to show all the tissues.
- b.) Briefly describe the importance of each of the tissue to a plant.
- c.) Compare primary dicot stem with a monocot stem.

- 3a.) Name the group of plants that invaded the land first.
- b.) Describe the characteristic features of this group of plants, highlighting the advanced features.
- c.) Classify these plants into classes giving one example for each class.
- d.) Why is this group considered to be important to the world.

- 4a.) Viruses are classified into four morphological shapes. Name these shapes with an example for each shape.
- b.) Bacteriophage is said to have complex structure. Explain giving reasons.
- c.) With the aid of diagrams describe the replication of viruses.

5) Write short notes on any three (03) the following

- a.) Parenchyma tissue
- b.) Deserts
- c.) Importance of fungi
- d.) Waste water treatment
- e.) Use of microorganisms as bio fertilizers

\*\*\*\*\* Copy rights Reserved\*\*\*\*\*

