The Open University of Sri Lanka
Faculty of Natural Sciences
B. Sc / B. Ed Degree Programme

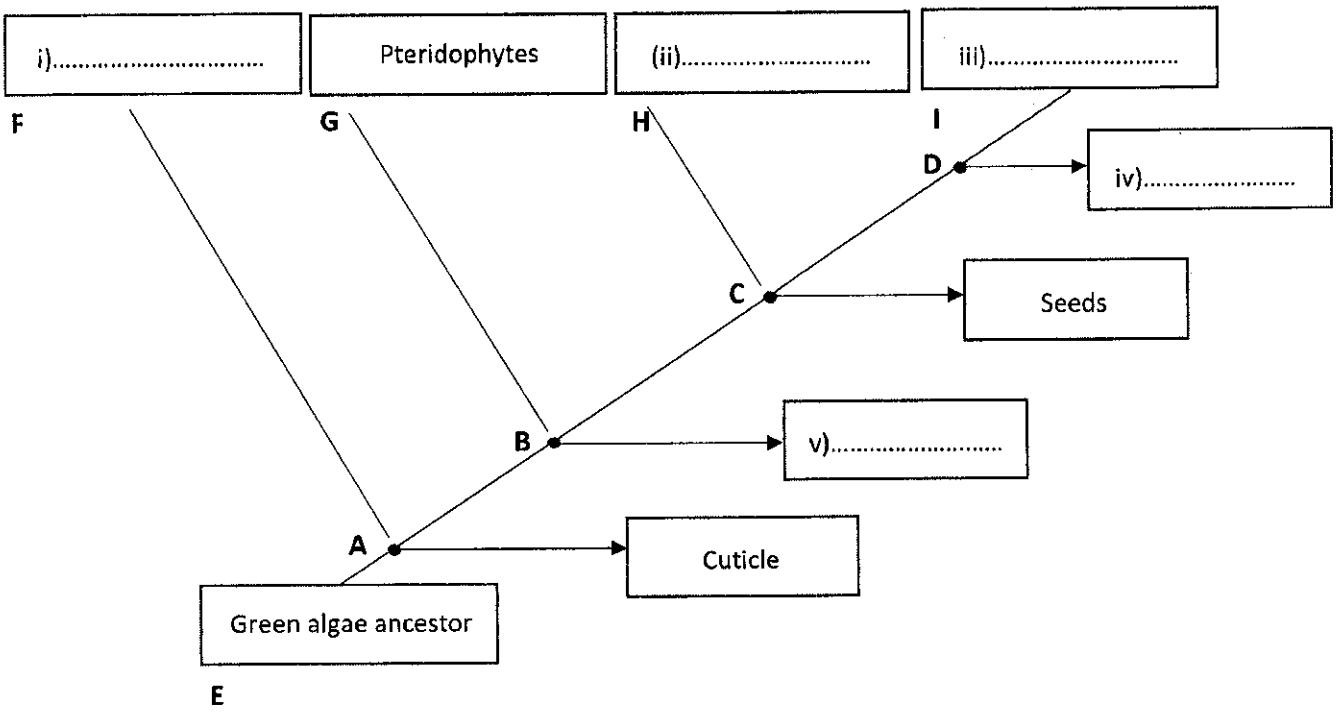
Department	**: Botany**
Level	: 03
Name of the Examination	: Final Examination
Course Title and - Code	: Diversity of Plants BYU3500
Academic Year	: 2023/2024
Date	: **02**/04/2024
Time	: 9.30-12.30
Duration	: 03 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of 12 questions in Part I and 6 questions in part II in twelve (12) pages.
3. Answer **all questions in Part I and only 04 questions from Part II.** All questions in Part II carry equal marks.
4. Answer for each question should commence from a new page.
5. Draw fully labeled 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.

PART A

01. I) Fill the blanks of the following diagram.



(03 X 5=15 marks)

II) Give a suitable title for the above diagram.

.....

(10 marks)

III) What do **A**, **B**, **C** and **D** points in the diagram indicate?

.....

.....

.....

.....

(10 marks)

IV) Which point indicates the start of land plant evolution?

.....

(05 marks)

V) Mention five (05) adaptations that land plants gained, for the better survival in the terrestrial habitat.

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(05 x 5= 25 marks)

VI) State two (02) differences you observe between the plant groups **H** and **& I?**

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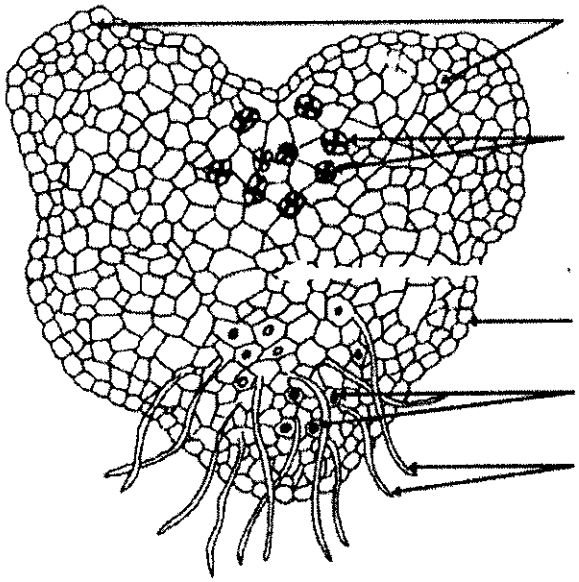
(15 marks)

VII) compare the vascular systems of monocot and dicot stems with the use of diagrams.

(20 marks)

02. I) Label the parts of the following diagram from **a** to- **e**.



(03x5= 15 marks)

II) Give a suitable caption for the above diagram.

.....

.....

(10 marks)

III) What is the dominant phase of the life cycle of a fern?

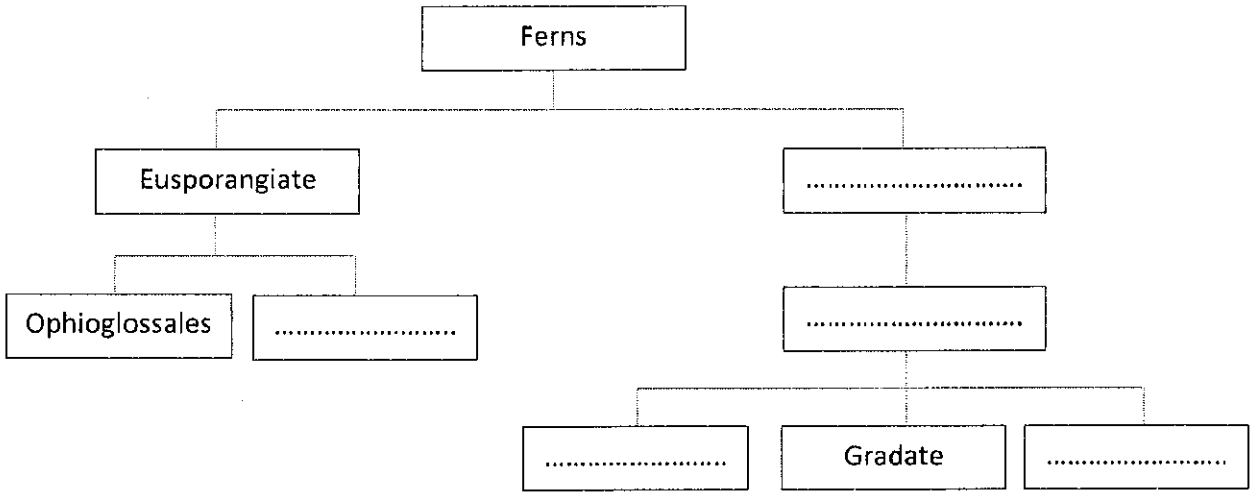
.....

(05 marks)

IV) Draw the life cycle of a typical fern.

(25 marks)

VI) Complete the following chart.



(03x5=15 marks)

VII) Give two (02) examples for each of the following different types of ferns.

a) Ferns with marginal sori

.....

b) Ferns showing leaf dimorphism –

.....

c) Water ferns -

.....

d) Ferns with superficial sori -

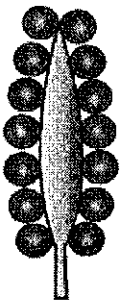
.....

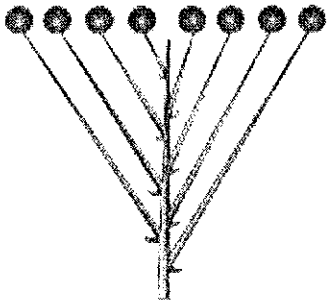
e) Fossil pteridophytes -

.....

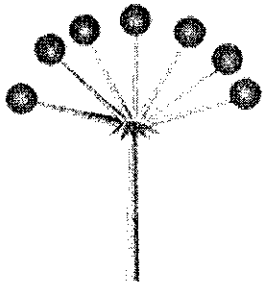
(03x10=30 marks)

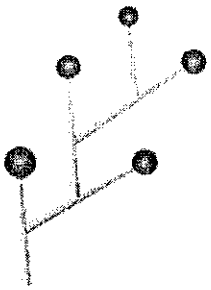
03. Name the following different inflorescence types.





I..... II..... III.....





IV..... V.....

(02X5=10 marks)

04. Indicate-the-most suitable term for each of the following description.

I. A kind of vegetative reproduction seen in algae -

.....

II. Non-motile unicellular structures produced in asexual reproduction of algae –

.....

III. Fusion of two gametes which are similar in shape but dissimilar in size -

.....

IV. Unicellular eukaryotes other than plants, animals or fungi -

.....

V. Organisms who can produce their food by photosynthesis -

.....

.....

(02x5=10 marks)

05. List five (05) main uses of algae.

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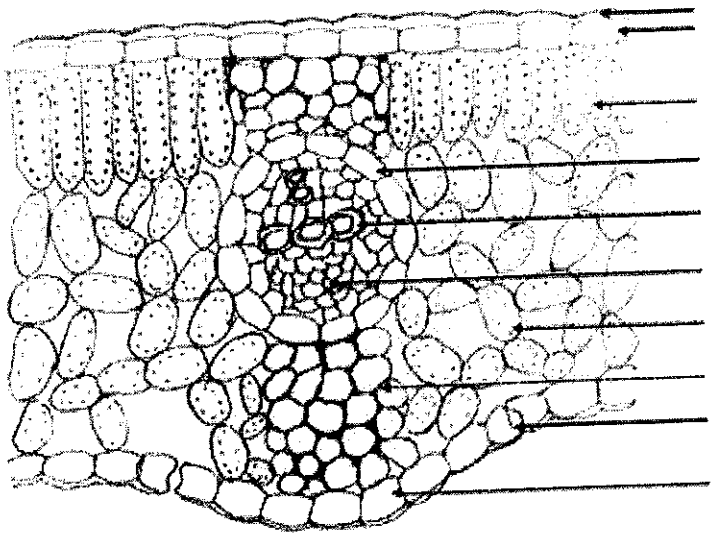
(02x5=10 marks)

06. Label the mentioned parts (by arrows) of the following micrograph showing the T.S. of a dicot leaf.



(01x10=10 marks)

07. Complete the following table mentioning the toxins produced by each cyanobacterium.

Cyanobacterium	**Toxin**
Anabaena sp.	
Microcystis sp.	
Lyngbya sp.	
Nostoc sp.	

(2.5x4=10 marks)

08. Give two examples for each of the following specific types of algae.

I. Calcified algae -

.....

.....

II. Siphonaceous algae -

.....

.....

III. Unicellular algae -

.....

.....

IV. Kelps –

.....

.....

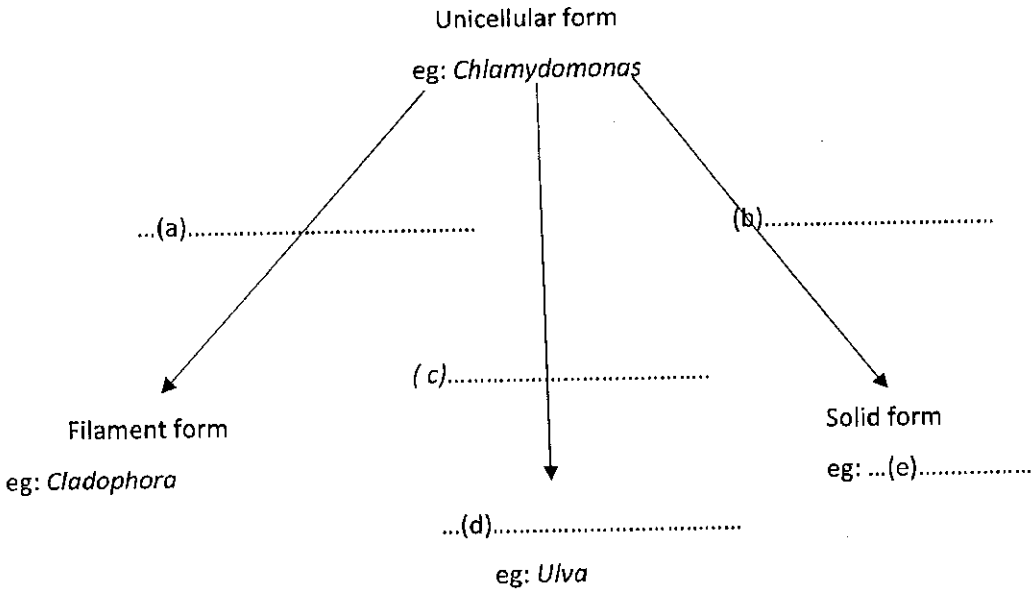
V. Fresh water algae -

.....

.....

(02x5=10 marks)

09. The below Chart indicates patterns of cell division in green algae. Complete the chart by filling the spaces (a) to (e)



(02x5=10 marks)

10.Give two (02) examples each for following different types of fungi

I) Agonomycetes fungi –

.....

.....

II) Coelomycetes fungi –

.....

.....

III) Hyphomycetes fungi –

.....

.....

IV) Coprophilous fungi –

.....

.....

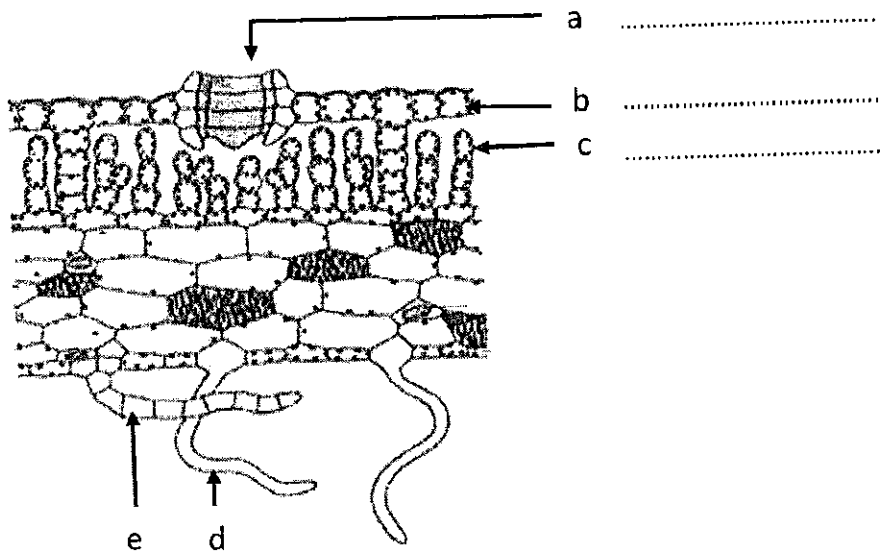
V) Macro fungi –

.....

.....

(02x5=10 marks)

11.Following is a T.S. of *Marchantia* thallus. Name the labeled parts from **a**-to **e**.



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(02x5=10 marks)

12.Complete the following table on Gram staining of bacteria.

Chemical	Role	Difference in cell wall	
		Gram positive	Gram negative
Crystal violet	.....	Become purple	Become purple
.....	Mordant	CVI complex is formed	.....
95% alcohol	Decolourizing agent	.....	Become colourless
Safranin	.....	Remain purple colour	Become pink colour

(02x5=10 marks)

PART II

1.'Viruses possess properties that are traditionally associated with microorganisms as well as molecules'

(a) list down five (05) characteristic features of viruses (10 marks)

(b)Write a concise account of bacteriophages (30 marks)

(c) Compare the lytic and lysogenic cycles of viral replication giving the similarities and differences in these two modes of replication (60 marks)

2. a) Write a concise account on the morphological diversity of green algae. (60 marks)

b) What are the different types of life cycles that can be found in green algae? (40 marks)

3. a) Name the main types of sori found in higher ferns and briefly describe how their development has been used in classification. (40 marks)

b) Briefly state how ferns are better adapted to a terrestrial habitat when compared to bryophytes. (60 marks)

4. Write short notes on the ANY three (03) of the following:

(a) characteristic features of leafy liverworts and thallose liverworts

(b) Epidermal tissue in angiosperms

(c) Dispersal of fruits and seeds

(d) Epiphytism

5. (a)Briefly state the salient features of the subdivision zygomycotina, paying attention to its morphology of the mycelium, cell wall, mode of nutrition and reproductive structures. (30 marks)

(b)Discuss the morphological diversity of the sexual reproductive structures of the class Zygomycota with named examples and suitable illustrations. (70 Marks)

6." *Availability of water is one of the factors that determine the morphological diversity of plants in a terrestrial habitat*". (100 marks)

Discuss this statement by giving suitable examples.