



2<sup>ND</sup> SEMESTER 2018/2019

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**UNIVERSITY OF SWAZILAND**  
**FINAL EXAMINATION PAPER**

**PROGRAMMES:**

- B.SC. IN AGRICULTURAL AND BIOSYSTEMS ENGINEERING YEAR 1**
- B.SC. IN AGRICULTURAL ECONOMICS AND AGRIBUSINESS MANAGEMENT YEAR 1**
- B.SC. IN AGRICULTURAL EDUCATION YEAR 1**
- B.SC. IN AGRICULTURAL EXTENSION YEAR 1**
- B.SC. IN AGRONOMY YEAR 1**
- B.SC. IN ANIMAL SCIENCE YEAR 1**
- B.SC. IN ANIMAL SCIENCE (DAIRY) YEAR 1**
- B.SC. IN CONSUMER SCIENCE YEAR 1**
- B.SC. IN CONSUMER SCIENCE EDUCATION YEAR 1**
- B.SC. IN FOOD SCIENCE, NUTRITION AND TECHNOLOGY YEAR 1**
- B.SC. IN HORTICULTURE YEAR 1**
- B.SC. IN TEXTILES, APPAREL DESIGN AND MANAGEMENT YEAR 1**

**COURSE CODE:** CPR 104

**TITLE OF PAPER:** BOTANY

**TIME ALLOWED:** TWO (2) HOURS

**INSTRUCTIONS:** ANSWER QUESTION ONE (1) AND ANY OTHER THREE  
(3) QUESTIONS OF YOUR CHOICE

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THE CHIEF INVIGILATOR**

**QUESTION 1 (COMPULSORY QUESTION)**

For each question, choose the correct option which best answers that question. Read all choices before you choose. (1 Mark each)

1. In plant cells, where is the Plasmodesmata located?
  - A. Secondary pit fields
  - B. Plasma membrane
  - C. Primary pit fields
  - D. Cytoplasm
2. The phospholipid bilayer found in the plasma membrane in plant cells is composed of;
  - A. Hydrophilic tails and hydrophobic heads
  - B. Hydrophilic heads and hydrophobic tails
  - C. Primary and secondary heads
  - D. Phospholipids and hydrophobic layers
3. Which of the following is lacking in parenchyma cells?
  - A. Primary cell walls
  - B. Secondary cell walls
  - C. Vacuole
  - D. Both the primary and secondary cell walls.
4. Fibres are type of which cells?
  - A. Sclerenchyma
  - B. Collenchyma
  - C. Parenchyma
  - D. Sieve tube members
5. The ground tissues are formed by which group of cells?
  - A. Sclereids, collenchyma and companion cells
  - B. Trichomes, fibres and parenchyma
  - C. Tracheids, sieve tube members and vessel elements
  - D. Parenchyma, collenchyma and sclerenchyma.
6. Water and dissolved minerals transporting tissues are formed by which group of cells?
  - A. Companion cells and sieve tube members
  - B. Tracheids and vessel elements
  - C. Parenchyma and sclerenchyma
  - D. Trichomes and companion cells.



7. Plant food conducting tissues are formed by which group of cells?
  - A. Companion cells and sieve tube members
  - B. Tracheids and vessel elements
  - C. Parenchyma and sclerenchyma
  - D. Trichomes and companion cells.
8. Which of these cells are found in the dermal tissues of some primary stems and leaves?
  - A. Trichomes
  - B. Dermal parenchyma cells
  - C. Endodermal cells
  - D. Sclereids
9. The stele in primary roots of monocots is formed by which tissues?
  - A. Primary xylem and pericycle
  - B. Casparian strips and vascular tissues
  - C. Primary xylem and primary phloem
  - D. Ground tissues
10. Which tissues are found in the region of cell division in primary roots?
  - A. Primary tissues
  - B. Primary meristems
  - C. Ground tissues
  - D. Secondary tissues
11. Primary growth in primary stems of dicots is facilitated by;
  - A. The procambium layer
  - B. The shoot apical meristem
  - C. Lateral meristem
  - D. Vascular cambium and shoot apical meristem
12. In both primary stems of dicots and primary roots of monocots, the vascular bundles are;
  - A. Arranged in a ring
  - B. They are scattered on ground tissues
  - C. They form an X-shape pattern
  - D. Herbaceous and forms a cylinder of vascular tissue.

13. Which of the following are lateral meristems?
- A. Cork cambium and protoderm
  - B. Shoot apical meristem and root apical meristem
  - C. Vascular cambium and cork cambium
  - D. Periderm and procambium
14. Botanically speaking, what is wood?
- A. Woody xylem
  - B. Secondary xylem
  - C. Secondary phloem
  - D. Both secondary xylem and secondary phloem
15. Botanically speaking, what is bark?
- A. Heartwood and sapwood
  - B. Secondary phloem
  - C. Phelloderm and vascular cambium
  - D. Phelloderm and periderm
16. What are the other names of the phellogen and phellem?
- A. Cork cambium and cork
  - B. Secondary phloem and outer bark
  - C. Inner bark and outer bark
  - D. Summer wood and spring wood
17. The activity of the vascular cambium is seasonal, but not uniform throughout the year. This results in the formation of;
- A. Xylem rays and phloem rays
  - B. Summer wood and spring wood
  - C. Secondary xylem and secondary phloem
  - D. Heartwood and sapwood
18. Secondary growth is limited in primary stems of monocotyledonous plants because of;
- A. Vascular cambium and cork cambium are not active
  - B. Vascular bundles are scattered throughout the ground tissues
  - C. Vascular bundles are absent
  - D. Vascular bundles are arranged like a "human face" thus no activity of the lateral meristems



19. Botanically speaking, what is a fruit?
- A. Matured ovary of a flower
  - B. Matured seeds and its embryo
  - C. Ripened embryo after fertilization
  - D. Matured gynoecium after fertilization
20. A hypogynous ovary has;
- A. Petals, sepals and stamens on the rim of hypanthium
  - B. Petals, sepals and stamens attached at the base of ovary
  - C. Petals, sepals and stamens attached at the top of ovary
  - D. Petals, sepals and stamens are lacking
21. A perigynous ovary has;
- A. Petals, sepals and stamens on the rim of hypanthium
  - B. Petals, sepals and stamens attached at the base of ovary
  - C. Petals, sepals and stamens attached at the top of ovary
  - D. Petals, sepals and stamens are lacking
22. Aggregate fruits are;
- A. Fruits which split open along definite edges at maturity to shed their seeds
  - B. Composed of ovaries from separate pistils of one flower
  - C. Composed of ovaries from separate pistils of several flowers
  - D. Fruits which do not split open along definite edges at maturity to shed their seeds
23. Which of the following fruits are false berries?
- A. Peach and plum
  - B. Tomato and banana
  - C. Raspberry and strawberry
  - D. Pumpkin and watermelon.
24. Which of the following are multiple fruits?
- A. Raspberry and strawberry
  - B. Pineapple and maize cob
  - C. Apple and pear
  - D. Pumpkin and watermelon.
25. Cotton fruits fall under which category of fruits?
- A. Achene
  - B. Schizocarp
  - C. Samara
  - D. Capsule

**QUESTION 2**

Copy and complete the table below. List three (3) types of meristematic tissues, three (3) types of primary meristems and three (3) types of non-meristematic tissues. Give **one** (1) function of each of the listed tissues and meristems.

Meristematic tissues	Function	
a)		(3 Marks)
b)		(3 Marks)
c)		(3 Marks)
Primary Meristems	Function	
a)		(2 Marks)
b)		(2 Marks)
c)		(3 Marks)
Non - Meristematic tissues	Function	
a)		(3 Marks)
b)		(3 Marks)
c)		(3 Marks)

[25 MARKS]



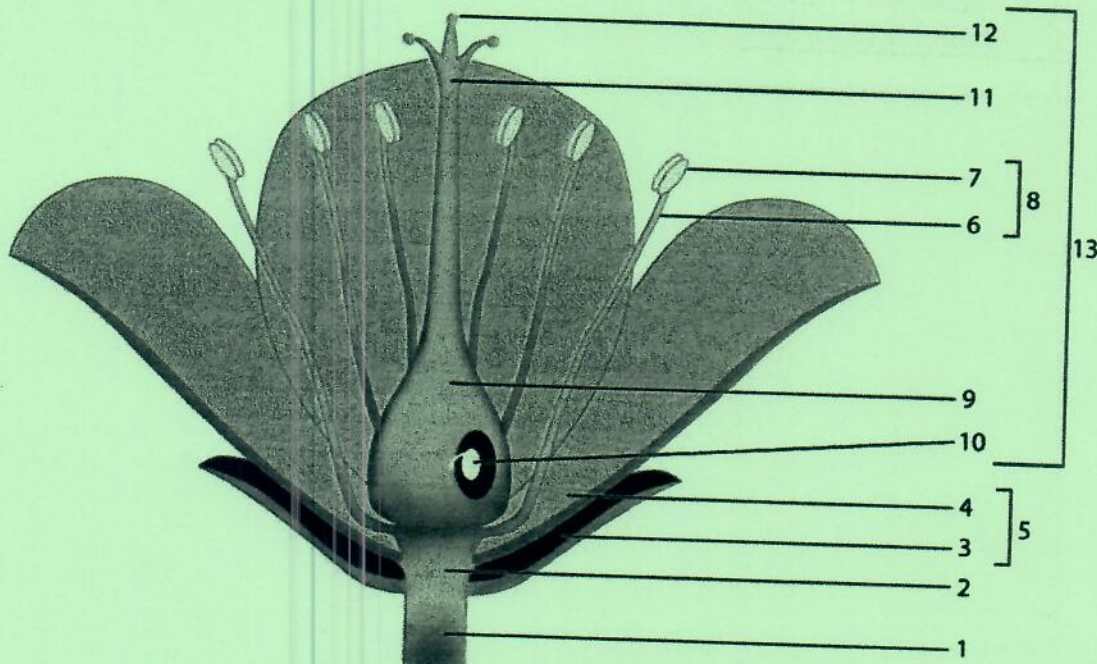
**QUESTION 3**

In a table format, give the main morphological and anatomical differences between leaves found in monocotyledonous and monocotyledonous angiosperms.

Morphological and anatomical features	Monocotyledonous angiosperms	Dicotyledonous angiosperms

**QUESTION 4**

The labelled diagram below shows a typical flower structure found in angiosperms. Based on the figure, answer the following questions;



- Name the parts labelled 1 to 13. *Note: Part 13 excludes the part labelled 8* (13 Marks)
- What are the functions of parts labelled 7 and 9? (4 Marks)
- The part labelled 10 produces a certain sexual gamete. Describe how this sexual gamete is formed and also give the cells contained in the gamete. (8 Marks)

**[25 MARKS]**



**QUESTION 5**

Give **common names** and **botanical names** of **any two (2)** useful plants found in the following Families;

- a) Poaceae (5 Marks)
  - b) Solanaceae (5 Marks)
  - c) Brassicaceae (5 marks)
  - d) Rosaceae subfamily Maloideae (5 Marks)
  - e) Cucurbitaceae (5 Marks)
- [25 MARKS]**