UNIVERSITY OF SWAZILAND
FINAL EXAMINATION PAPER

PROGRAMMES: B.SC. IN AGRICULTURAL & BIOSYSTEMS ENGINEERING YEAR 1
B.SC. IN AGRICULTURAL ECONOMICS AND AGRIBUSINESS MANAGEMENT YEAR 1
B.SC. IN AGRICULTURAL EDUCATION YEAR 1
B.SC. IN AGRONOMY YEAR 1
B.SC. IN ANIMAL SCIENCE YEAR 1
B.SC. IN CONSUMER SCIENCE YEAR 1
B.SC IN CONSUMER SCIENCE EDUCATION YEAR 1
B.SC. IN FOOD SCIENCE, NUTRITION & TECHNOLOGY YEAR 1
B.SC. IN HORTICULTURE YEAR 1
B.SC. IN TEXTILE AND APPAREL DESIGN & MANAGEMENT YEAR 1

COURSE CODE: CP 102

TITLE OF PAPER: BOTANY

TIME ALLOWED: TWO (2) HOURS

INSTRUCTIONS: ANSWER QUESTION ONE (1) AND ANY OTHER THREE (3) QUESTIONS

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QUESTION 1 (THIS IS A COMPULSORY QUESTION)

A) MULTIPLE CHOICE QUESTIONS.

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

1. What are angiosperms?
   A. Tall evergreen plants **B.** Plants with angiosperm cells **C.** Flowering plants **D.** Non flowering vascular plants

2. The cell wall is composed of three (3) layers which are the;
   A. Middle lamella, primary cell wall and secondary cell wall **B.** Middle lamella, inner lamella and outer lamella **C.** Primary cell wall, secondary cell wall and tertiary cell wall **D.** Primary cell wall, plasma membrane and secondary cell wall.

3. Which of these best describe the function of the plasmodesmata?
   A. Encloses and protects the constituents of a cell **B.** It glues two adjoining cells together. **C.** Are narrow channels that allow intercellular movement of water and nutrients. **D.** Provide the mechanism of driving force for cell growth.

4. Which of the following cells are a conspicuous component of the hard shells of nuts and hard coverings of seeds of stone fruits? These also create the gritty texture associated with certain fruits (e.g. pears).
   A. Companion cells **B.** Parenchyma cells **C.** Sclerenchyma cells **D.** Stone cells

5. Which of these cells are dead at functional maturity ?
   A. Tracheids **B.** Companion cells **C.** Root hairs **D.** Parenchyma cells

6. Which cells form the tissues involved in the translocation of plant food?
   A. Sclereids and tracheids **B.** Companion cells and sieve tube members **C.** Collenchyma and the vessel elements **D.** Tracheids and vessel elements

7. The cells forming the xylem tissue in primary dicotyledonous roots, form;
   A. A ring between cortex and pith **B.** an X-shape in the stele **C.** A ring between endodermis and pith **D.** Mass of undifferentiated cells in the stele.

8. The cortex and pith in primary stems of dicots and monocots are formed by which group of cells?
   A. Collenchyma, sclerenchyma and parenchyma **B.** Collenchyma, companion cells and guard cells **C.** Fibers, sclereids and ground cells **D.** Collenchyma, sclereids and parenchyma.

9. What kind of photosynthetic cells are found in the mesophyll region in leaves?
   A. Chlorenchyma **B.** Parenchyma sheath **C.** Guard cells **D.** Collenchyma

10. In primary roots of monocots and dicots, lateral roots are produced by the;
   A. Xylem **B.** Endodermis **C.** Pericycle **D.** Root hairs

11. The scattered arrangement of vascular bundles on the ground tissues in primary stems of monocots ensures that;
   A. There is primary growth in the root **B.** There is secondary growth **C.** There is no secondary growth **D.** The whole root is supplied with water, minerals and plant food.

12. The quiescent centre in primary roots is found in the;
   A. Root cap **B.** Zone of cell division **C.** Zone of cell elongation **D.** Zone of cell maturation

13. Root hairs are important in plant growth and development because they;
   A. Anchor the plant into the soil. **B.** Store starches. **C.** Increase the surface area for absorption of water and minerals. **D.** Provide a habitat for nitrogen-fixing bacteria.

14. Closed vascular bundles in leaves, means;
   A. There is no secondary growth **B.** There is no transport of water and minerals
   C. Phloem and xylem are non functional **D.** There is secondary growth

15. In leaves, the lower and upper epidermal layers are differentiated from the;
   A. Cuticle **B.** Ground meristem **C.** Mesophyll meristem **D.** Protoderm

(1 Mark each = 15 Marks)

B) COPY AND COMPLETE THE TABLE

Give the two (2) types of lateral meristems and the three (3) secondary tissues they produce.

Lateral Meristems	**Secondary Tissues**
a)	a)
b)	b)
	c)

(2 Marks each = 10 Marks)

[15 Marks + 10 Marks = 25 MARKS]

QUESTION 2

In a tabular format, compare and contrast the anatomical and morphological features of a monocotyledonous and a dicotyledonous foliage leaf.

[25 MARKS]

QUESTION 3

Write short notes on the following terms related to the reproduction of angiosperms;

a) Bisexual flower (3 Marks)

b) Pollination (3 Marks)

c) Development of the megagametophyte (8 Marks)

d) Double fertilization (6 Marks)

e) Alternation of generations. (5 Marks)

[25 MARKS]

QUESTION 4

Write short notes on the following terms related to the taxonomy of angiosperms;

a) Plant systematics (5 Marks)

b) Phytography (5 Marks)

c) Carl Linnaeus classification system (5 Marks)

d) Class Magnoliopsida (5 Marks)

e) Authority (5 Marks)

[25 MARKS]

QUESTION 5

a) Give **three (3)** different uses of plants belonging to the Poaceae Family. Under each use give **two (2)** examples of useful plants, which should include both their common and botanical names.

[25 MARKS]