



UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION PAPER

2ND SEMESTER 2013/2014

PROGRAMMES:

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

COURSE CODE: CP102

TITLE OF PAPER: BOTANY

TIME ALLOWED: TWO (2) HOURS

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

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

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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. Plant cells that are usually dead at maturity include all of the following **except**
 - A. companion cells
 - B. sclereids
 - C. vessel elements
 - D. tracheids

2 marks
2. Which of the following cells are a conspicuous component of the hard shells of nuts and hard coverings of certain types of seeds? These also create the gritty texture associated with certain fruit (i.e., pears).
 - A. companion cell
 - B. parenchyma cell
 - C. sclereid
 - D. stone cell
 - E. Both C and D are correct choices

2 marks
3. A primary meristem which undergoes differentiation to form primary vascular tissues is called
 - A. Protoderm
 - B. Procambium
 - C. Vascular cambium
 - D. Lateral meristem

2 marks
4. The tissue that divides the wood and the bark is the
 - A. cork
 - B. periderm
 - C. vascular cambium
 - D. cork cambium
 - E. secondary phloem

2 marks
5. Growth rings can be seen in cross sections of trees because of differences in the sizes of the cells of the
 - A. sapwood and heartwood
 - B. early wood and late wood
 - C. primary and secondary xylem
 - D. primary and secondary phloem

2 marks
6. A nail is pounded into the side of a tree, 5 feet above the ground. The tree grows 1 foot per year. How far above the ground will the wire be after 3 years?
 - A. 5 feet
 - B. 6 feet
 - C. 7 feet
 - D. 8 feet
 - E. the tree will be dead by then

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7. The phenomenon of double fertilization involves the fusion between
A. the egg and two sperm
B. the egg and one sperm and the polar nuclei (central cell) and the other sperm
C. the egg and one sperm and the synergids and the other sperm
D. the egg and one sperm and the antipodals and the other sperm
2 marks
8. Fertilization is process of
A. transfer of pollen from the anther to the stigma
B. Fusion of one male gamete with the egg
C. Formation of seed from ovule
D. Fusion of male nucleus of polar nuclei.
2 marks
9. In flowering plants meiosis occurs at the time of
A. Germination of seed
B. Formation of buds
C. Formation of root primordium
D. Formation of pollen grain
2 marks
10. In angiosperms, the entry of the pollen tube into the embryo sac at the micropyle end is
A. Between the synergid and central cell
B. Through filiform apparatus
C. Between the synergid and egg
D. Directly into egg.
2 marks
11. Tricarpellary syncarpous ovary with parietal placentation is found in
A. Brassicaceae
B. Musaceae
C. Cucurbitaceae
D. Liliaceae
2 marks
12. The quiescent centre in primary roots in found in the
A. Root cap
B. Zone of cell division
C. Zone of cell elongation
D. Zone of cell maturation
2 marks
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 for absorption of water and minerals
D. Provide habitat for nitrogen fixing bacteria
1 mark

25 MARKS

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QUESTION 2

Describe the concept of alternation of generations in the life cycle of a plant. Be sure to include all stages, their chromosome number (haploid (n), diploid ($2n$)) and what type of cell division is responsible for getting from one stage to the next.

25 MARKS

QUESTION 3

Give botanical and common names of any two (2) useful plants in the following plant families.

- | | |
|---------------------------------|---------|
| a) Rosaceae subfamily Maloideae | 5 marks |
| b) Alliaceae | 5 marks |
| c) Solanaceae | 5 marks |
| d) Euphorbiaceae | 5 marks |
| e) Malvaceae | 5 marks |

25 MARKS

QUESTION 4

In a tabular format compare and contrast the anatomical and morphological features of a monocotyledonous and a dicotyledonous plant.

25 MARKS

QUESTION 5

Name five (5) crop species belonging to the sub-family Papilionoideae under the family Fabaceae. Your answer should include the common names, scientific names, as well as their uses.

25 MARKS