



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
THIRD YEAR FIRST SEMESTER**

**SCHOOL OF TOURISM AND NATURAL
RESOURCE MANAGEMENT
BACHELOR OF SCIENCE (FORESTRY)**

COURSE CODE: FEM 3122

COURSE TITLE: PLANT CELLS AND FUNCTIONS

DATE: 4TH DECEMBER 2018

TIME: 08:30 – 10:30 AM

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions in section **A** and any other **THREE** in section **B**.

This paper consists of 2 printed pages. Please turn over.

SECTION A: Answer all questions

Question 1

- (a) Identify the two kinds of softwood ray cells **(2Marks)**
(b) Show different layers of wood cell using illustrations **(4Marks)**
(c) Briefly describe conducting and strength elements of hardwoods and softwood **(4Marks)**
(d) Identify the main types of parenchyma cells and their function **(4Marks)**

Question 2

- (a) Using illustrations of the following terms as applied in plant anatomy.
(i) Macrofibrils **(3Marks)**
(ii) Pits **(4Marks)**
(iii) Wood figure **(4Marks)**

SECTION B: Answer any three questions

QUESTION 3

- (a) Compare the physical properties of Tension wood with those of Compression wood and the effect on each in service. **(6Marks)**
(b) Differentiate between the following terms
(i) Apotracheal and Paratracheal parenchyma cells **(6Marks)**
(ii) Ring porous and diffuse porous **(6Marks)**
(c) Explain in details why heartwood is preferred for structural purposes than sapwood **(3Marks)**

QUESTION 4

- (a) Compare and contrast the physical properties of Earlywood and late wood. **(5Marks)**
(b) Give the details of parenchyma cells arrangements in hardwoods **(6Marks)**
(c) Explain the formation of tylosis and include at least two advantages and two disadvantages for such wood in service. **(4Marks)**

QUESTION 5

- (a) Using illustrations, outline the various types of
(i) Vessel perforation plates
(ii) Vessel distribution patterns

Each 4Marks=8Marks

- (b) Briefly describe growth rings and their usefulness in wood utilization **(3Marks)**
(c) Describe the formation processes of resin canals using illustration where possible **(4Marks)**

QUESTION 6

Explain the following using illustrations where possible

- (i) Plant cell wall layering **(4Marks)**
(ii) Margo and Torus **(4Marks)**
(iii) Vessel clusters **(3Marks)**
(iv) Homogenous and heterogenous ray cells **(4Marks)**

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