



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
FOURTH YEAR SECOND SEMESTER**

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

**COURSE CODE: FOR 421
COURSE TITLE: NON-WOOD AND FOREST
PRODUCTS**

DATE: 23RD APRIL 2019

TIME: 1430 - 1630HRS

INSTRUCTIONS TO CANDIDATES

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

SECTION A (25 MARKS)

1. (a) Identify the criteria used in grouping wood products into major or minor products **(3Marks)**
(b) Explain the merits and demerits of the whole tree utilization concept **(4Marks)**
(c) Discuss briefly the use of wood bark in Kenya and the increase in the recent past. **(3Marks)**
(d) Identify the properties of bark that make it potential raw material for industrial use? **(3Marks)**
2. (a) Write short notes on the following chemical wood products:
(i) Cellulose ethers
(ii) Modified cellulose
(iii) Regenerated cellulose **(6Marks)**
- (b) Explain the factors that influence quality of tannin from *Acacia meansii*? **(4Marks)**
- (c) Identify the factors that must be considered before extraction of tannin from source. **(2Marks)**

SECTION B (45 MARKS)

3. (a) Discuss in details the “Integrated Management of Non Wood Forest Products resources” in relation to scientific knowledge and technology. **(4Marks)**
(b) Explain the advantages and disadvantages of “domestication” of Non Wood Forest Product (NWFP) resources. **(4Marks)**
(c) Discuss the research and development requirements for improving technology and management of non-wood forest products. **(4Marks)**
(d) Explain the factors that influence sustainability of non-wood forest products **(3Marks)**
4. (a) Identify the factors that affect market supply of gums in Kenya. **(4Marks)**
(b) Discuss major challenges experienced by communities living in ASALS dealing with gums as source of livelihood. **(4Marks)**
(c) Discuss tannins as classified by Parkin and Everest. **(3Marks)**
(d) Discuss any two methods used in the purification of tannins. **(4Marks)**
5. (a) Discuss any three types of gums giving details of their properties and composition. **(6 Marks)**
(b) Explain the factors that increase gum exudation from a tree. **(2 Marks)**
(c) Explain the main problems in wood saccharification. **(4 Marks)**
(d) Explain why the potential for fermentable sugar yield is lower in hardwoods than softwoods. **(3Marks)**
6. (a) Discuss any two commercial methods that you can use for production of ethanol from wood or wood waste in Kenya. **(6 Marks)**
(b) Give details of wood hydrolysis by percolation process. **(4 Marks)**
(c) Discuss the potential of bee-keeping as a source of livelihood for some Kenyan communities. **(5Marks)**

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