



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

**SCHOOL OF NATURAL RESOURCE,
ENVIRONMENTAL STUDIES & AGRICULTURE**

**BACHELOR OF SCIENCE IN SUSTAINABLE
FOREST MANAGEMENT**

COURSE CODE: SFM 1208-1

COURSE TITLE: INTRODUCTION TO PAPER

SCIENCE

DATE: 16/5/2024

TIME : 0830-1030 HRS

INSTRUCTIONS TO CANDIDATES

Answer **All** the Questions in Section A and any **THREE** IN SECTION B
*This paper consists of **TWO** printed pages. Please turn over*

Section A: Answer ALL Questions (20 Marks)

Question 1:

- a) Give 4 (four) examples of paper products (2 Marks)
- b) State the primary raw materials for paper production (1 mark).

Question 2:

Describe 3 (three) different tests for the mechanical performance of paper. (6 marks)

Question 3:

- a) What is pulp freeness? (2 Marks)
- b) Name three (3) commercial technologies for pulp production (3 Marks)

Question 4:

- a) Name 4 (four) characteristics of mechanical pulp for paper production (2 marks)
- b) Name the 2 (two) main chemical pulping processes (1 Mark)

Question 5:

- a) How can the brightness of pulp be improved? (1 Mark)
- b) State the desired characteristics of a bleaching processes (1 Mark)
- c) How is bonding of pulp fibres achieved during paper manufacturing? (1 Mark)

Section B: Answer Any 3 Questions (30 Marks)

Question 6: (10 Marks)

- a) Describe how stone-ground wood is prepared (5 marks)
- b) Describe the Thermo Mechanical Pulp (TMP) process (5 Marks).

Question 7: (10 Marks)

- a) State any four (4) main differences in sulphite and sulphate pulp characteristics (4 Marks)
- b) Describe both the batch and continuous pulping processes. (6 Marks)

Question 8: (10 Marks)

- a) Why are alternatives to the most selective and cheap bleaching reaction developed? (3 Marks)
- b) Describe paper making process (7 Marks)

Question 9: (10 Marks)

- a) What is pulp beating? How does it affect the quality of paper produced? (4 Marks)
- b) Giving examples, state two (2) wet-end chemicals that can be used in the papermaking process and their uses? (6 Marks)

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