KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER
SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN RENEWABLE ENERGY AND BIO FUELS TECHNOLOGY

COURSE CODE: REN 121

COURSE TITLE: INTRODUCTION TO MANUFACTURING PROCESSESS

DURATION: 2 HOURS

DATE: 27/07/2022 **TIME: 8:00AM-10:00AM**

INSTRUCTIONS TO CANDIDATES

- Answer **QUESTION ONE** (Compulsory) and any other**ONE** (1) Question.
- Indicate **answered questions** on the front cover.
- Start every question on a new page and make sure question's number is written on each page.

This paper consists of printed pages. Please Turn Over

SECTION A: QUESTION ONE IS COMPULSORY

(QUESTION ONE : 30 MARKS)
(a) sketch the following drilling operations
(i) spot facing
(ii) counterboring
(iii) reaming

(6 marks)

(b) (i) State THREE safety precautions observed in sheet metal SOLDERING process
(ii)State THREE merits of Tungsten inert Gas welding

(6 marks)

(c) Describe the following heat treatment processes applied on metal
(i) Annealing
(ii)Hardening

(6 marks)

(d)Sketch an Engine lathe machine and label SIX main parts

(6 marks)

(e) Illustrate the principle of cylindrical grinding

(6 marks)

SECTION B: ANSWERR ANY TWO QUESTIONS FROM THIS SECTION

(QUESTION TWO : 20 MARKS)

(a)State FOUR types of tool cutting material applied on metal

(4 marks)

(b)With the aid of sketches, describe the working principle of a cupola furnace

(16 marks)

(QUESTION THREE: 20 MARKS)

(a)Describe the principle of the following METAL joining processes

(i) **Spot welding,**

(ii) Manual Metal Arc welding

(20 marks)

QUESTION FOUR: 20 MARKS)

(a) Explain the shearing principle applied to metal (8 marks)

(b)Explain **UPSETTING** as a forging operation

(12 marks)

QUESTION FIVE: 20 MARKS)

(a)Describe the SLIDING BLOCKdrive mechanism of a shaping machine (12 Marks)

(b)Illustrate the **GANG** milling operation

(8 marks)