



# KIBABII UNIVERSITY

**UNIVERSITY EXAMINATIONS  
2020/2021 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: INRODUCTION TO MANUFACTURING PROCESS**

**DURATION: 2 HOURS**

**DATE: 1/10/2021**

**TIME: 11:00-1:00AM**

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## INSTRUCTIONS TO CANDIDATES

- Answer **QUESTION ONE** (Compulsory) and any other **ONE (1)** Questions.
- 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 2 printed pages. Please Turn Over



KIBU observes ZERO tolerance to examination cheating

**SECTION A: QUESTION ONE IS COMPULSORY**

(QUESTION ONE : 30 MARKS)

(a) Sketch a lathe machine and label SIX main parts

(6 marks)

(b) Illustrate the principle of a cylindrical grinder

(6 marks)

(c) (i) State THREE safety precautions observed in sheet metal SOLDERING process

(ii) State THREE advantages of Tungsten inert Gas welding

(6 marks)

(d) Describe the following heat treatment processes

(i) Annealing

(ii) Hardening

(6 marks)

(c) sketch the following drilling operations

(i) spot facing

(iii) counterboring

(6 marks)

**SECTION B: ANSWER 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 operations of a cupola furnace

(16 marks)

QUESTION THREE : (20 MARKS)

(a) Describe the drive mechanism of a shaper

(12 Marks)

(b) Illustrate a gang milling operation

(8 marks)

QUESTION FOUR: (20 MARKS)

(a) Explain the shearing principle applied to metal

(8 marks)

(b) Explain the following forging processes

(i) upsetting

(ii) drawing

(12 marks)

QUESTION FIVE: (20 MARKS)

(a) Describe the principle of the following joining processes

(i) Spot welding, a resistance welding process

(ii) Arc welding

(20 marks)