



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS  
2022/2023 ACADEMIC YEAR**

**SECOND YEAR SECOND SEMESTER EXAMINATIONS**

**BACHELOR OF SCIENCE  
IN  
EDUCATION TECHNOLOGY (MECH. ENG)**

**COURSE CODE: TEC 213 MAIN EXAMS**

**COURSE TITLE: WORKSHOP TECHNOLOGY**

**DATE: 20/4/2023**

**TIME: 12.00 - 14.00 PM**

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**INSTRUCTIONS TO CANDIDATES**

Question ONE (1) is compulsory  
Answer Any Other TWO (2) questions

TIME: 2 Hours

THIS PAPER CONSISTS OF (3) PRINTED PAGES

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**QUESTION ONE****(30 marks)**

- i) Describe the following types of lathe machines:- a) Chucking machine b) Turret lathe  
c) CNC machine (6 marks)
- ii) Explain the drilling process and discuss the various operations that can be carried out  
with a drilling machine (8 marks)
- iii) a) Describe tool grinding? (1 mark)  
b) State five reasons why tool grinding and setting is an important aspect in any  
machining operation? (5 marks)
- iv) Explain: - a) Soldering b) Brazing; stating the application of each (4 marks)
- v) With appropriate sketches, briefly describe the forging methods:- a) Open die forging  
b) Impression die forging c) Flash less forging (6 marks)

**QUESTION TWO****(20 marks)**

- i) Discuss the following types of drilling machines:- a) Radial drilling machine b) Gang  
drilling machine c) Multiple spindle drilling machine (6 marks)
- ii) State any three work holding and three tool holding devices used in drilling  
operations (6 marks)
- iii) Name and explain the types of reamers (6 marks)
- iv) State the necessary conditions for any machining operation (2 marks)

**QUESTION THREE****(20 marks)**

- i) Describe the basic working principle and six main parts of a lathe machine (8 marks)
- ii) Name and discuss any four types of work part holding devices in lathe (6 marks)

- iii) State four factors that must be considered when determining the correct cutting speed and amount of feed of a machining process (4 marks)
- iv) What is a face plate as used in lathe machine operations? (2 marks)

**QUESTION FOUR**

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**(20 marks)**

- i) What is recrystallization temperature in forging (2 marks)
- ii) What is upset forging? State its application in industry (3 marks)
- iii) Describe four methods of thread cutting (6 marks)
- iv) a) State the classifications of cutting fluids and b) what is their main functions in industry (5 marks)
- v) What is the function of flux in metal joining processes? (4marks)

