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UNIVERSITY EXAMINATIONS 2024/2025

FIRST YEAR FIRST SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF
TECHNOLOGY IN MECHANICAL ENGINEERING AND BACHELOR OF
EDUCATION TECHNOLOGY IN MECHANICAL ENGINEERING

EMT 3407: MANUFACTURING TECHNOLOGY

DATE: JANUARY 2025

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Define the following terms;
 - i. Sintering. (2 marks)
 - ii. Atomization. (2 marks)
 - iii. Electrolysis process. (2 marks)
- b) Evaluate four steps in chemical machining. (4 marks)
- c) With aid of sketch, explain gas metal arc welding. (5 marks)
- d) Briefly explain 6 main benefits for plasma assisted processes (6 marks)
- e) State two main limitations of electrical discharge machining. (2 marks)
- f) Discuss three chemical solution deposition methods (3 marks)
- g) Assess four types of time period allowed during different stages of welding.(4 marks)

QUESTION TWO (15 MARKS)

With a well labelled sketch discuss working principle of laser beam machining and develop a product of your own choice that can be produced by laser beam machining

QUESTION THREE (15 MARKS)

Discuss with aid of diagrams the 6 welding defects and devise a method for each to reduce the defects impact on the welded part

QUESTION FOUR (15 MARKS)

- a) Design and discuss five uses of lasers in surface treatment and coating (10 marks)
- b) With aid of diagram, explain working principle of electrochemical deposition (5 marks)

QUESTION FIVE (15 MARKS)

- a) Discuss four characteristics on which the behaviour of metal powder depends (8 marks)
- b) Examine the two classifications of processing of powder (7 marks)