

**FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**  
**SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION**  
**DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION**  
**FIRST SEMESTER EXAMINATION, 2021/2022 SESSION**

COURSE CODE: ITE 215

COURSE TITLE: METALWORK TECHNOLOGY

TIME: 2 HRS, 15 MINS

**INSTRUCTIONS: Answer Only Five (5) Questions, QUESTION ONE (1) IS COMPULSORY.**

- 1a. Draw a well labelled vernier caliper with at least six (6) parts placed correctly.
- 1b. List ten (10) mechanical properties of metal and explain any five (5).
- 1c. List the three categories of metal working process and three classification of machine tools.
- 1d. State five (5) advantages of machine tools over hand tools.
  
- 2a. Draw a neat micrometer screw gauge with at least six (6) parts correctly placed.
- 2b. State four general ways in which the shaping of metals is achieved by machines.
  
- 3a. Illustrate any six (6) drilling operation in metals using clear diagrams only.
- 3b. Define precision measuring instruments and list any four (4).
  
- 4a. Show a schematic set up of sand moulding / casting process.
- 4b. List five (5) machine tools, explain the function of each and two safety precautions each
  
- 5a. List and explain any five (5) common metal forming technique.
- 5b. List any five (5) types of inspection gauges and state their uses.
  
- 6a. List and explain any four (4) type of welding.
- 6b. Briefly explain the following drilling operations; Reaming, Boring and Counter boring.