FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA,
SCHOOL OF TECHNOLOGY EDUATION,
DEPARTMENT OF INDUSTRIAL & TECHNOLOGY EDUCATION,
FIRST SEMESTER 2012/2013 EXAMINATION

COURSE CODE: - MWT 211
COURSE TITLE: - METALWORK TECHNOLGY
TIME ALLOWED: - 2 HOURS.
INSTRUCTION: - ASNWER FOUR (4) QUESTIONS ONLY.

(1a). Why do we need precision measuring tools?
b. Using a neat diagram of micrometer screw gauge describe the following parts of a micrometer: Anvil; Spindle; Sleeve; Thimble; Ratchet stop.
c. Briefly explain the three main categories of machine tools used in the metal industries.

(2a). Outline five (5) ways of caring for micrometers
b. Briefly describe a vernier caliper with reference to main scale; vernier scale; Jaw (fixed & movable); clamp screw and measuring surfaces (inside & outside work).
c. List five (5) types of casting processes that may be available in metal working industries.

(3a). Differentiate between the following gauges using relevant sketches:
Plug; Ring and Snap gauges
b. Outline five (5) relevant precautions to be observed in order to preserve the accuracy and life of gauges.
c. List four (4) four other gauges used in the metal workshop.

(4a). Explain the following Mechanical properties of metals: Malleability; Hardness; Plasticity; Fusibility; Hardenability.
b. Annealing and Normalizing processes appears to be the same to a non metal specialist, clearly differentiate between the two processes.
c. State the functions of the following machine tools: Lathe; Milling; Drilling; Shaper; Grinding.

(5a). Two (2) students on fieldtrip were involved in a argument on differences between foundry and casting and consulted you as a metalwork specialist, explain to the students clearly if there are differences between the two processes.
b. With the aid of neat sketches differentiate between drawing down and upsetting as forging processes.
c. List five (5) common tools required for sand casting