FACULTY: ENGINEERING
SECOND SEMESTER EXAMINATIONS (JULY 2016)
2015/ 2016 ACADEMIC SESSION

HOD'S SIGNATURE

COURSE CODE: MEE 308
COURSE TITLE: METROLOGY
DURATION: 1 HOUR 30MINS

INSTRUCTIONS

1. ATTEMPT 4 QUESTIONS IN ALL. QUESTION NO FIVE (5) IS COMPULSORY
2. BOLD AND LEGIBLE WRITING WILL BE REWARDED

QUESTION ONE (1)

a) Define the term Measurement from engineering perspective **(2 marks)**
b) Mention 3 forms of measurement and give 1 example for each **(6 marks)**
c) State the importance measurement in manufacturing industries **(2 marks)**
d) State the difference between direct and indirect measurement. Mention one instrument each for types of measurement **(3 marks)**
e) What is the sole purpose of Limit Gauging? **(2 marks)**

QUESTION TWO (2)

a) Explain the main difference between Measurement and Inspection **(3 marks)**
b) Define Engineering Tolerance **(2 marks)**
c) Give 2 reasons why concept of Tolerance is introduced in manufacturing process **(4 marks)**
d) State the difference between bilateral and unilateral tolerance. Give one example for each **(4 marks)**
e) Define the term Fit **(2 marks)**

QUESTION THREE (3)

a) Define Metrology **(2 marks)**
b) What is a Dimension? **(2 marks)**
c) Give 4 examples of Dimension **(2 marks)**
d) Explain the term Precision of measuring instrument **(3 marks)**
e) Define the term Allowance from engineering point of view and state the difference between it and Tolerance? **(6 marks)**

QUESTION FOUR (4)

a) Mention 3 types of fit **(3 marks)**
b) What is Accuracy in Metrology? **(2 marks)**
c) Define Sensitivity of a measuring instrument **(2 marks)**
d) Give any 3 methods of measurement **(2 marks)**
e) Explain briefly how to measure or determine the following surfaces (i) Flat surface (ii) Roundness of a circle **(10 marks)**

QUESTION FIVE (5) COMPULSORY

a) What does S.I. stand for? **(1 mark)**
b) State the S.I. units for the following quantities (i) Length (ii) Mass (iii) Force (iv) Time (v) Temperature (vi) Pressure **(3 marks)**
c) Differentiate between base and derived quantity. Hence, in a tabular form classify the six quantities in Question 5b into base and derived **(5 marks)**
d) Given dimension **40±0.02 mm** for the distance between two holes **20±0.18 mm.** From the given data, determine the following:- (i) Maximum size for the centre distance between the two holes (ii) Minimum size for the hole (iii) Minimum size for the centre distance between the two holes (iv) Maximum size for the hole (v) Tolerance for centre distance between the holes and the hole **(6 marks)**