



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST YEAR SEMESTER ONE EXAMINATION FOR

CRAFT IN BUILDING AND CIVIL ENG

APPLIED SCIENCE

DATE:

TIME:

INSTRUCTIONS: ANSWER ALL QUESTIONS

QUESTION ONE (20 MARKS)

- a) Define the following terms and state their international standards of units (6 marks)
- i. Length
 - ii. Mass
 - iii. Weight
- b) List the instruments used for measuring the following
- i. The length of a teacher's desk
 - ii. Measuring distances on solid objects where ordinary rule cannot be applied.
 - iii. Measuring the diameter of a piece of wire (3 marks)
- c) Draw a micrometer screw gage, label the parts and reading of 0.562 (11 marks)

QUESTION TWO

- a) Define force of friction (2 marks)
- d) Differentiate between static and dynamic friction. (4 marks)
- e) State the five laws of friction. (10 marks)
- f) Draw a simple sketch to show forces of static friction. (4 marks)

QUESTION THREE

- a) Define the following and state the international standard of units (8 marks)
- i. Work
 - ii. Energy
 - iii. Power
 - iv. Machine
- b) Differentiate between the following (4 marks)
- i. Kinetic energy
 - ii. Potential energy
- c) A body mass of 5kgs supported 12m above the ground. Determine the potential energy by the body due to its position with respect to the ground. (4 marks)
- d) Complete the following (4 marks)
- i. Work done = force x.....
 - ii. Work done = weight x.....
 - iii. Power = force x.....
 - iv. Time is given by??

QUESTION FOUR

List and explain 5 areas where friction is desirable and undesirable in daily life.