



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

CRAFT IN BUILDING AND CIVIL ENGINEERING

APPLIED SCIENCE

DATE:

TIME:

INSTRUCTIONS: Answer all questions

1. 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)
2. a) Define force of friction (2 marks)
- b) Differentiate between static and dynamic friction. (4 marks)
- c) State the five laws of friction (10 marks)
- d) Draw a simple sketch to show forces of static friction (4 marks)
3. 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??

4 List and explain 5 areas where friction is desirable and undesirable in daily life(20 marks)