

MACHAKOS UNIVERSITY

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF
MECHANICAL AND MANUFACTURING ENGINEERING**

EMM 104 WORKSHOP PRACTICE AND PROCESS I

DATE:

TIME: 2HOURS

INSTRUCTIONS

- ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE- 30MARKS

- a) The table below shows the set of gauges available

Range	Step	Pieces
1.001 to 1.009	0.001	9
1.01 to 1.49	0.01	49
0.5 to 9.5	0.5	19
10 to 90	10	9
Total		86

Build up the following measurement

- I. 56.421mm
 - II. 78.748mm
 - III. 5.345mm 6mks
- b) Explain the duties of employer and employee in promoting safety in the workshop 6mks
- c) Explain three causes of accidents in the workshop 6mks
- d) Outline safety precautions when using the following tools
- i. hammers
 - ii. files
 - iii. chisel 6mks

- e) Describe any three classes of fire and the three appropriate fire extinguisher (6mks)

QUESTION TWO- 20MK

- a) Define the following terms
- i. marking out
 - ii. datum and explain purposes of the same (6mks)
- b) Explain the working of the scrappers (5mks)
- c) Describe the following
- i. surface table
 - ii. angle plate
 - iii. vernier height gauge (9mks)

QUESTION THREE- 20 mks

- a) Show the following readings
- i. 40,22mm in vernier scale
 - ii. 123.12mm in vernier scale
 - iii. 9.44 mm in micrometer scale
 - iv. 16.77mm in micrometer scale (6mks)
- b) Explain the working principles of
- i. snap gauges
 - ii. plug gauges
 - iii. taper gauges
 - iv. telescopic gauges (8mks)
- c) Describe how concentricity of a shafts is checked in the workshop (6mks)

QUESTION FOUR- 20marks

- a) Describe the following
- i. blind rivets
 - ii. solid and tubular rivets (6mks)
- b) Explain the term soft soldering and why fluxes are use on the same process. Outline some fluxes use. (6mks)

- c) Using neat sketches describe three design of joints in soldering process (8mks)

QUESTION FIVE 20marks

- a) Explain three different types of hand shears (6mks)
- b) Describe the working principles of
- i. Universal surface gauge
 - ii. Scribing block (6mks)
- c) Describe how electric safety measure is enhanced in the workshop (8mks)