



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL ENGINEERING

(DME 115 Y1 SII)

EHL 2105: WORKSHOP TECHNOLOGY & PRACTICE II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date May 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

a) Define the following terms as used in machine tool practice:

- i Cutting speed
- ii Feed rate
- iii Spindle speed

6 Marks

b) It is required to drill a 10 mm diameter hole on a mild steel workpiece using high speed steel (HSS) drill bit.

- i Taking the cutting speed of mild steel to 30m/min, calculate the theoretical drill bit speed for this operation
- ii The available speeds (in rpm) in the drilling machine are 480, 730, 1160, 1800 and 2800. With reasons which speed is more appropriate for this drilling operation

6 Marks

2Marks

c) With the aid of neat sketch(s), describe the sensitive or bench drilling machine **16 Marks**

Question TWO

a) With the aid of sketch(s), describe the following drilling machine operations:-

- i Drilling
- ii Boring
- iii Reaming
- iv Counterboring
- v Countersinking
- vi Tapping

18 Marks

b) In screw thread form, explain what is meant by “pitch”

2 Marks

Question THREE

a) Explain the following engineering material properties:-

- i Brittleness
- ii Plasticity
- iii Ductility
- iv Tensile strength
- v Malleability

10 Marks

b) Describe the following metal joining methods:-

- i) Soldering
- ii Brazing
- iii Gas welding
- iv Arc welding
- v Riveting

10 Marks

Question FOUR

a) Explain any FIVE Workshop Rules and Regulations

10 Marks

b) Describe corrosion as used in metals

10 Marks

Question FIVE

a) With the aid of neat sketch(s), describe the following V-thread form terminologies:-

- i Nominal diameter
- ii Pitch
- iii Crest
- iv Root diameter
- v Root

10 Marks

b) Describe the following measuring tools:-

- i Vernier calliper
- ii Micrometer screw gauge
- iii Tape measure

10 Marks