



# TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MEDICAL ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN MEDICAL ENGINEERING**

**EHL 2105: WORKSHOP TECHNOLOGY & PRACTICE II**

**END OF SEMESTER EXAMINATION**

**SERIES:**AUGUST2017

**TIME:**Choose hoursHOURS

**DATE:**Pick DateSep2017

## Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

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

**Do not write on the question paper.**

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## Question ONE

- a) **Figure 1** shows a plan view of a centre lathe machine. Name parts marked from **1 to 12** (12marks)
- b) State the function(s) of each of the parts marked from 1 to 12 (12marks)
- c) Explain any **THREE** operations that can be carried on using a centre lathe machine (6marks)

## Question TWO

- a) Describe the following metal joining methods;
  - i) Soldering
  - ii) Brazing
  - iii) Gas welding
  - iv) Arc welding

v) Riveting (10marks)

b) Explaining any **FIVE** workshop Rules and Regulations. (10marks)

### Question THREE

a) A cylindrical mild steel bar of diameter **30mm** has to be reduced to **20mm** diameter using a centre lathe. Determine the work piece speed in revolutions per minute, given that the cutting speed of mild steel is **30 meters** per minute. (6marks)

b) The available speeds in the headstock are **30,50,65,90,110,155,190,260,320,440,540,740,900,1230,1500** and **2500** revolutions per minute (RPM). Citing reasons, determine the appropriate speed for this turning operation? (4marks)

c) Define the following terms as applied in machine tool practice

i) Cutting speed

ii) Feed rate

iii) Spindle speed (3marks)

d) With the aid of a diagram, explain the sensitive/Bench drilling machine (7marks)

### Question FOUR

a) Explain any **FIVE** methods of clamping/holding work piece on a centre lathe (10marks)

b) Differentiate between the following as used on a centre lathe

i) Travelling steady (Follower Rest)

ii) Fixed steady (Centre Rest) (10marks)

### Question FIVE

a) Explain any **FIVE** operations performed using a drilling machine (10marks)

b) Sketch and label thread configuration of "**M10×1**" (10marks)

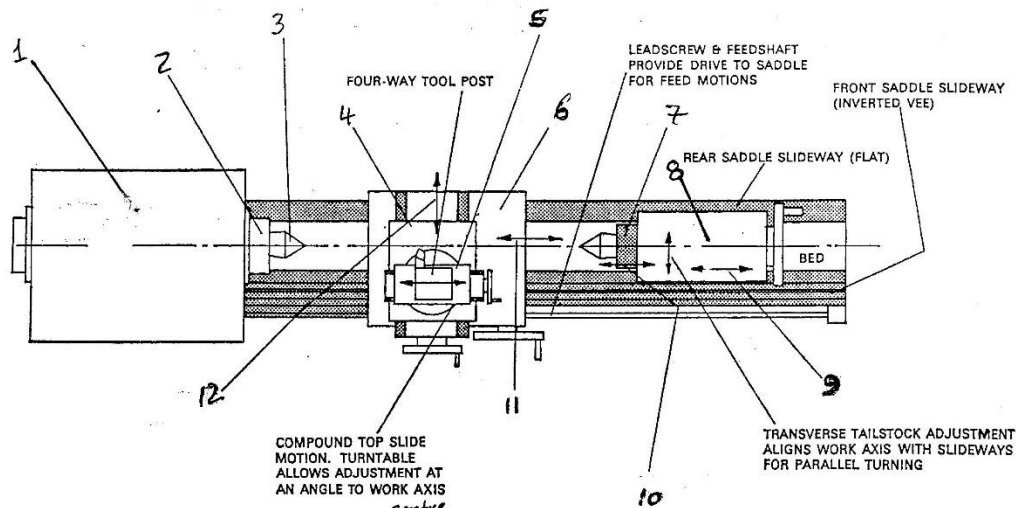


Fig. 1: Plan view diagram of lathe.