



TECHNICAL UNIVERSITY OF MOMBASA

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.

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)**

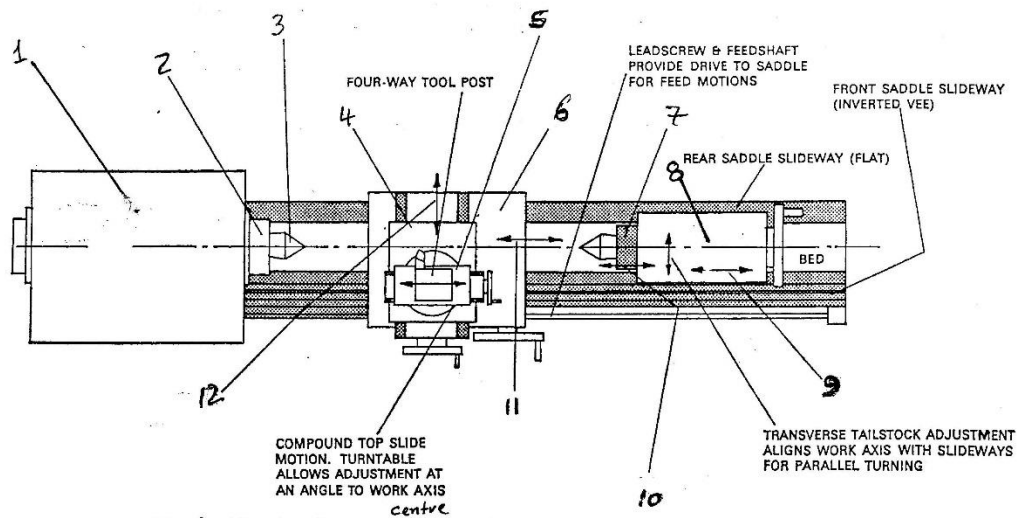


Fig. 1: Plan view diagram of lathe.