



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering and Technology
DEPARTMENT OF MEDICAL ENGINEERING

DIPLOMA IN MEDICAL ENGINEERING
(DME 113)

EHL 2105
WORKSHOP TECHNOLOGY AND PRACTICES II

SPECIAL/SUPPLEMENTARY EXAMINATIONS

SERIES: JULY, 2014

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

- Question No 1 is **COMPULSORY** question No. 1
- Attempt any other **TWO** questions.

This paper consists of **3 PRINTED** pages

QUESTION ONE (COMPULSORY)

- (a) Figure 1 shows centre lathe machine. Name parts marked 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10
(10 marks)
- (b) State the functions of each of the parts market from 1(one) to 10 (ten).
(10 marks)
- (c) Explain any **FIVE** operations that can be performed on a centre lathe.
(10 marks)

QUESTION TWO

- (a) With the aid of sketches, 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

It is required to drill a 15 mm diameter hole on a mild steel work piece using high speed steel (HSS) drill bit.

- (a) Taking the cutting speed of mild steel to be 30 m/min, calculate the theoretical drill bit speed for this operation.
(6 marks)
- (b) The available speeds in the drilling machine are 480,730, 1160, 1800 and 2800 revolution per minute (RPM) which speed is appropriate for this drilling operation-give reasons. (2 marks)
- (c) Sketch and label a sensitive/Bench drilling machines.
(12 marks)

QUESTION FOUR

- (a) Differentiate between geometrical specifications and compositional specifications as used in grinding wheels/stones. **(2 marks)**
- (b) Explain any **FOUR** types of grinding machines. **(8 marks)**
- (c) A grinding wheel/stones has the following specifications:
A 15 C 3 E
Explain what this means. **(10 marks)**

QUESTION FIVE

- (a) With the aid of sketches explain the importance of the **THREE** major angles of a centre lathe cutting tool. **(10 marks)**
- (b) Describe the following metal joining methods, giving **THREE** examples in each case:-
(10 marks)