

TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MECHANICAL ENGINEERING

EME 2108: ENGINEERING DRAWING II

SUPPLEMENTARY/SPECIAL EXAMINATIONS

SERIES: Select series2016

TIME: 2HOURS

DATE: Pick DateSelect MonthPick Year

Instructions to Candidates

You should have the following for this examination *-Answer Booklet, drawing instruments, 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(COMPULSORY)

Figure Q.1 shows details parts of a Vee block clamp. Draw to full scale in the first angle orthographic projection the following views

- i. Front elevation of correctly assembled block clamp
- ii. Sectional end elevation along plane A-A
- iii. Prepare a part list(20mks)

Question TWO

A cam is to be designed for a knife-edge follower with the following data:

Cam lift = 40mm during 90° of cam rotation with simple harmonic motion.

Dwell for the next 30° .

During the next 60° of the cam rotation, the follower returns to its original position with a simple harmonic motion.

Dwell during the remaining 180° .

Draw the profile of the cam when the line of stroke is offset 20mm from the axis of the cam shaft.(20mks)

Question THREE

a) With the aid of neat sketches, define the following screw thread terminologies.

- i. Crest
- ii. Major diameter
- iii. Pitch
- iv. Effective diameter (8mks)

b) Construct the profile for a single –start right –hand square thread with major diameter 100mm and lead 36mm, scale 1:1 (*12mks*)

Question FOUR

Figure Q.4 shows a slider-crank mechanism. The crank OA rotates about a fixed centre O. The connecting rod AP slides in a trunnion, which pivots about point X. if OA = 35mm, AP = 130mm and OX = 85mm, construct the locus of point P.. (20mks)

Question FIVE

a) Illustrate with diagrams the following types of fits:

- i. clearance fit
- ii. transition fit
- iii. interference fit(*6mks*)

b) Define the maximum and minimum limits of size, for the hole and shaft, in the following rating systems:

- i. 55mm H8/f6
- ii. 225mm H7/p7
- iii. 7.5mm H7/k6

Which kind of fit is achieved in each instance?(6mks)

c) Figure Q.5 shows a sectional bush shaft assembly. Use BS4500 selected ISO fits table to find the limits and fits between:

- i. bush and housing
- ii. bush and shaft(*8mks*)



FIGURE Q.1





FIGURE Q.4



FIGURE Q.5

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