MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF EDUCATION, HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF mechanical engineering

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

THIRD YEAR **SECOND** SEMESTER EXAMINATION FOR BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING

EMT103: ENGINEERING DRAWING II

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer Question one and any other two questions.

2. Mobile phones are not allowed in the examination room.

3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

1) a. Fig 1 attached shows parts of a protected fla_____ coupling.

   Draw i. Assembly of all the parts in full size and include a partlist   (10marks)

      ii. Half sectional front elevation _____from the right   (8marks)

   b. With the aid of a heat sketches illustrate the three types of fits and give one application
   in each case   (12marks)

2) Figure 2 attached shows two pipes K and W of unequal diameter and they intersect at
   right angles as shown.

   Draw in full size

   a) The plan

   b) The curve of interpretation

   c) Development of the pipe Kwith x –x at the seam.   (20marks)

SECTION TWO: ANSWER ANY TWO QUESTIONS

QUESTION TWO (20 MARKS)

3) Figure 2 attached shows two pipes K and W of unequal diameter and they intersect at
   right angles as shown.

   Draw in full size

   d) The plan

   e) The curve of interpretation

   f) Development of the pipe Kwith x –x at the seam.   (20marks)

QUESTION THREE (20 MARKS)

4) a.Figure 3 attached shows a crack mechanism. The crank OJ rotates uniformly
   anticlockwise about) and the level KL is pivoted at L. Construct the locus of point P for
   a complete revolution of OJ   (12marks)

   b. Define the following terms as applied in limits and fits

         a. Tolerance

b. Fit

c. Upper deviation

d. **Basic size**   (8marks)

QUESTION FOUR (20 MARKS)

1) Construct the profile of radial cam which rotates with constant a_____ velocity in an anticlockwise direction and impacts motion to a knife edge follower as described below:

    i)   Cambouk 45mm diameter

    ii)   Can shft 20mm diameter

    iii)   Follower lift 35mm during 120° rotation of _____

    iv)   Following desels between 120° and 240°

    v)   Following falls 35mm between 240° and 360°

    vi)   Rise and falls with uniform velocity   (20marks)