CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION

AGEN 111: INTRODUCTION TO TECHNICAL DRAWING

STREAMS: BSC (AGEN)   **TIME: 2 HOURS**

DAY/DATE: MONDAY 09/12/2019   **8.30 A.M. − 10.30 A.M.**

INSTRUCTIONS: Answer all questions in section I and any other TWO in section II

SECTION I

1.   (a)   (i)   Draw and explain THREE lines used in geometrical constructions

[3 marks]

        (ii)   Explain the importance of a border line as used in drawing   [3 marks]

      (b)   Using the necessary sketches, show how you can dimension

        (i)   Circles

        (ii)   Radius curves

        (iii)   Angles   [6 marks]

      (c)   Divide a line measuring 150 mm into 9 equal parts. Every step of the process

[2 marks]

2.   Isometrically draw a block measuring 70 mm long by 50 mm high by 30 mm deep. From one of its ends, draw a table tenon measuring 25 mm by 5 mm by 25 mm   [10 marks]

3.   (i)   Using a sketch, explain the components of a title block   [2 marks]

(ii)   Using a diagram, explain how you can construct a perpendicular to a line from point P. Given that line AB = 95 mm; AP = 60 mm and BP = 55 mm   [2 marks]

4.   Explain how you can construct an angle of 15° by use of a set of compasses   [2 marks]

SECTION II (40 MARKS) – ANSWER TWO QUESTIONS

5.   (a)   Using a diagram, explain how a radius curve of 30 mm at an acute angle of 70° and a radius of 20 mm can be constructed.   [4 marks]

       (b)   Explain and construct an angle of 45° given that one of the sides AB = 60 mm.   [4 marks]

       (c)   Plot a locus of a point P that moves so that its distance from a point S and a line XY is always the same. Given that point S is 20 mm from line XY.   [12 marks]

6.   (a)   Explain what an Isometric drawing is, pointing out the two important rules that should be followed   [6 marks]

       (b)   The figure shown below shows the pictorial view of an engineering component. Sketch in free hand and in good proportions, suitable front view, end view and plan view of the component using third angle projection.   [14 marks]

7. (a) Explain ten basic tools that a drafts person needs for his work   [5 marks]

    (b) The figure shown below shows three views of shaped block. Using A4 paper size, draw the pictorial view of the block   [12 marks]

(c)   From drawing paper size A0 show the dimensions of sizes A1, A2, A3, A4 and
A5.   [3

marks]