



**UGANDA INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY**  
**END OF SEMESTER ONE EXAMINATIONS**  
**ACADEMIC YEAR 2024/2025**

**DEPARTMENT:** ICT

**SEMESTER:** TWO

**PROGRAMME(S):** HIGHER EDUCATION CERTIFICATE - ENGINEERING (HECE)

**YEAR OF STUDY:** ONE

**COURSE:** TECHNICAL DRAWING

**COURSE CODE :** HECE115

**DATE:** TUESDAY 17TH, DECEMBER 2024

**TIME:** 9:00 AM – 12:00 NOON

**DURATION:** 3 HOURS

**INSTRUCTIONS:**

- (i) This paper contains two Sections: A (40 marks) & B (60 marks).**
- (ii) Attempt ALL questions in Section A, and ONLY THREE questions in Section B.**
- (iii) All questions in Section B carry equal marks.**
- (iv) Credit will be given for use of relevant examples and illustrations.**
- (v) Begin each number in Section B on a new page of the answer sheet.**
- (vi) DO NOT write on this question paper.**

**SECTION A [40 MARKS]**

Attempt **ALL** the Questions in this Section.

**Question 1**

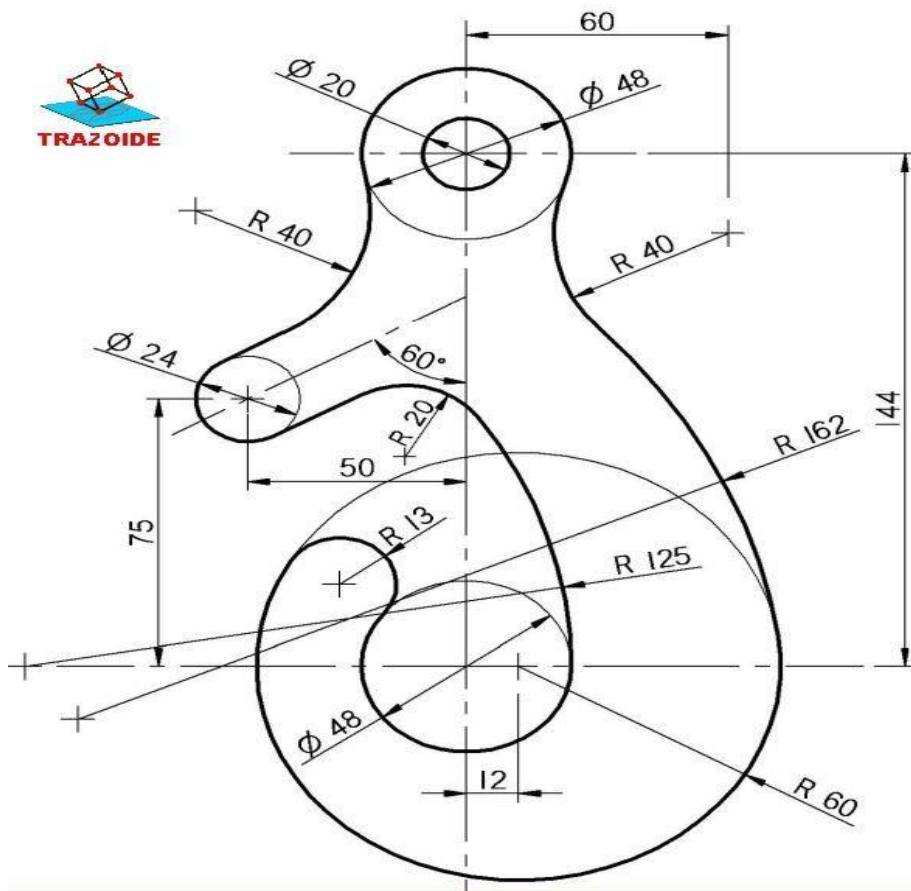
- a) Draw the boundary and title block to recommended ISO standard. **(10 marks)**
- b) Properly print your name, registration number, course name and course code **(10 marks)**
- c) Construct a square, hexagon and an octagon on the same base = 40mm. **(12 marks)**
- d) Draw a circle whose diameter is 90mm and inscribe a regular pentagon in the circle. **(8 marks)**

**SECTION B [60 MARKS]**

Attempt **ONLY THREE** Questions in this Section.

**Question 2**

Construct the machine part below showing all the centers clearly.



**(20 marks)**

# TECHNICAL DRAWING

## Question 4

- a) Construct an ellipse whose major axis is 120mm and minor axis 88mm. **(7 marks)**
- b) Construct a normal and a tangent at any point on the ellipse. **(3 marks)**
- c) Construct a parabola whose span is 120mm and height 68mm. **(10marks)**

## Question 5

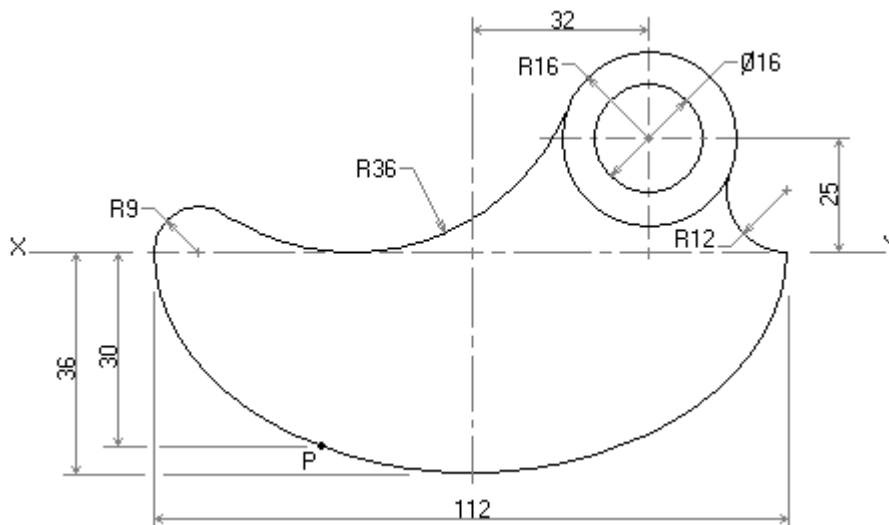
- a) i) Draw a square whose sides are 30mm. **(3 marks)**  
ii) Construct the involute of the square. **(7 marks)**
- b) i) The distance between the focus and the directrix of a hyperbola is 49mm, if its eccentricity is 6:5, construct the hyperbola. **(8 marks)**  
ii) Construct a tangent to the hyperbola. **(2 marks)**

## Question 6

- a) Construct a cycloid of a circle whose diameter is 52mm. **(10 marks)**
- b) Construct a tangent and a normal at any point on the cycloid. **(3 marks)**
- c) Construct an involute of an equilateral triangle whose sides are 30mm. **(7 marks)**

## Question 7

- a) The plate cam profile for a locking device is shown in the figure below. The position of the profile below the line XY is a true semi-ellipse. Show clearly the construction lines.



- b) Draw a circle whose radius is 22mm and construct its involute. **(10 marks)**