TEVETA
Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN AUTOMOTIVE/HEAVY EQUIPMENT ENGINEERING

LEVEL 6 YEAR I EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATION

SITTING: APRIL/MAY 2025

SUBJECT: ENGINEERING DRAWING I

TIME: THREE (3) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE

1. Draw a Title Block on the right bottom part of the Border Line of your answer sheet provided. Write your Examination Number, N.R.C number, Name of Programme and Institution.
2. There are FIVE (5) questions in this paper.
3. Attempt question ONE (1) as compulsory and any THREE (3) questions.
4. All dimensions are in millimeters (mm).
5. Show your constructions clearly.
6. Answer sheets will be provided.
7. Where dimensions are omitted they may be estimated.
8. Do NOT use a pen for drawing or writing on drawing paper. Use of ink on a drawing paper will lead to zero mark for that section of the question.
9. Scientific calculators are allowed in the examination room. However, Programmable calculators and cell phones are NOT allowed.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

QUESTION 1 - COMPULSORY

a) Prepare a title block on the right bottom part of the **Border Line** of your answer sheet and include the following:

(i) Title block and Border Line **[1 Mark]**

(ii) Name of institution and centre code **[1 Mark]**

(iii) Examination number **[1 Mark]**

(iv) National Registration Card Number, NRC. **[1 Mark]**

(v) Subject and code **[1 Mark]**

b) **Figure Q1** shows two views of a Jig Fixture in first angle projection. Select a scale and draw in the same projection the following views:

(i) The given front and top views **[15 Marks]**

(ii) An **End view** as viewed in the direction **E** **[20 Marks]**

Show hidden details in ALL views

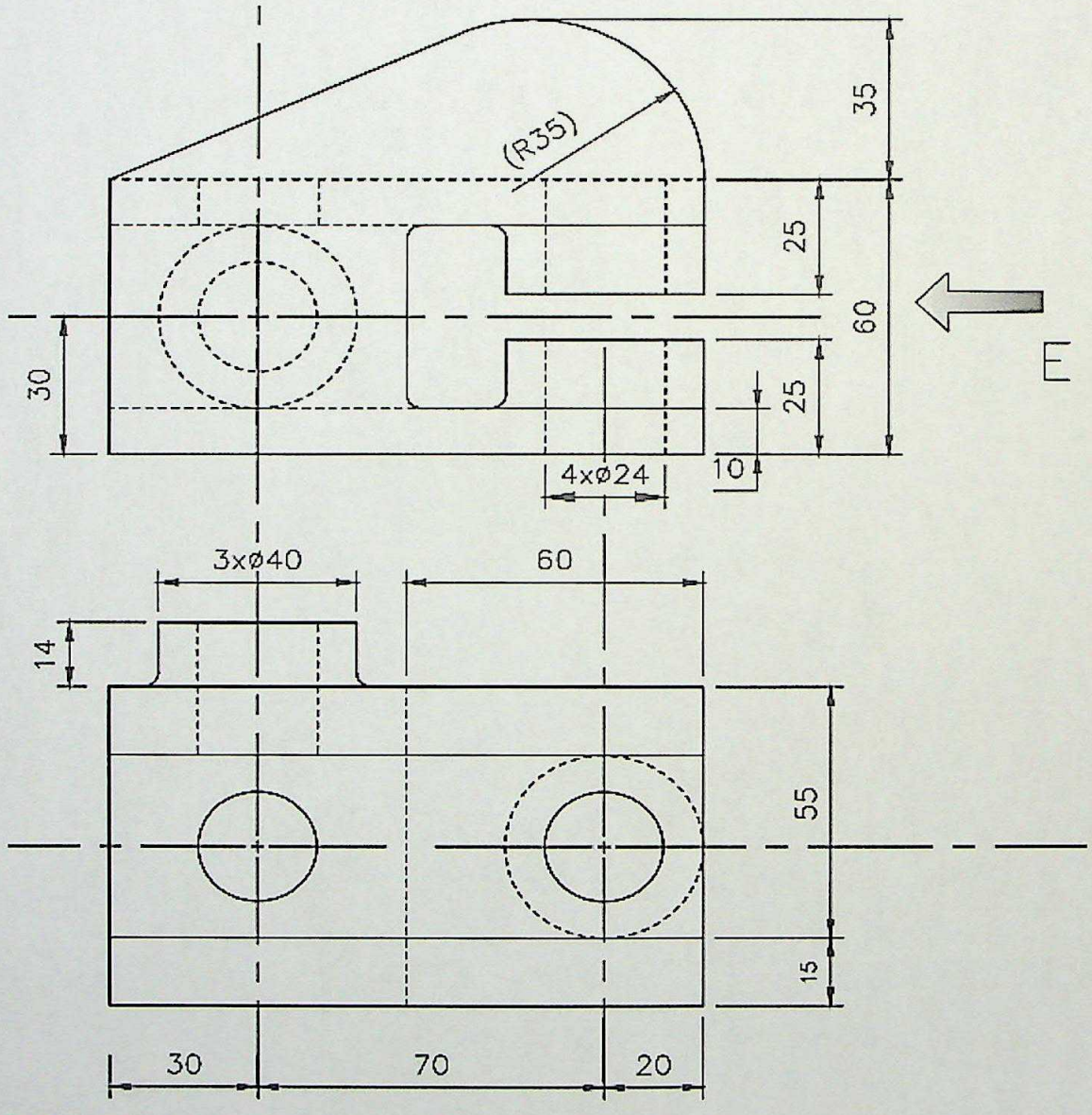


Figure Q1

Total [40 Marks]

QUESTION 2

The arrangement in **Figure Q2** contains two identical triangles ABC and ABC_1 whose common base angle is 67.5^0 and base AB equals the distance between focal points of an ellipse, F_1 F_2=102 mm. The sides of the triangle DEF i.e., DE and FE are tangents to the ellipse. It is important to note that the major axis will be 2(16) +102=134mm.

Draw an outline of the arrangement and annotate the values of sizes **X, Y** and **Z**.

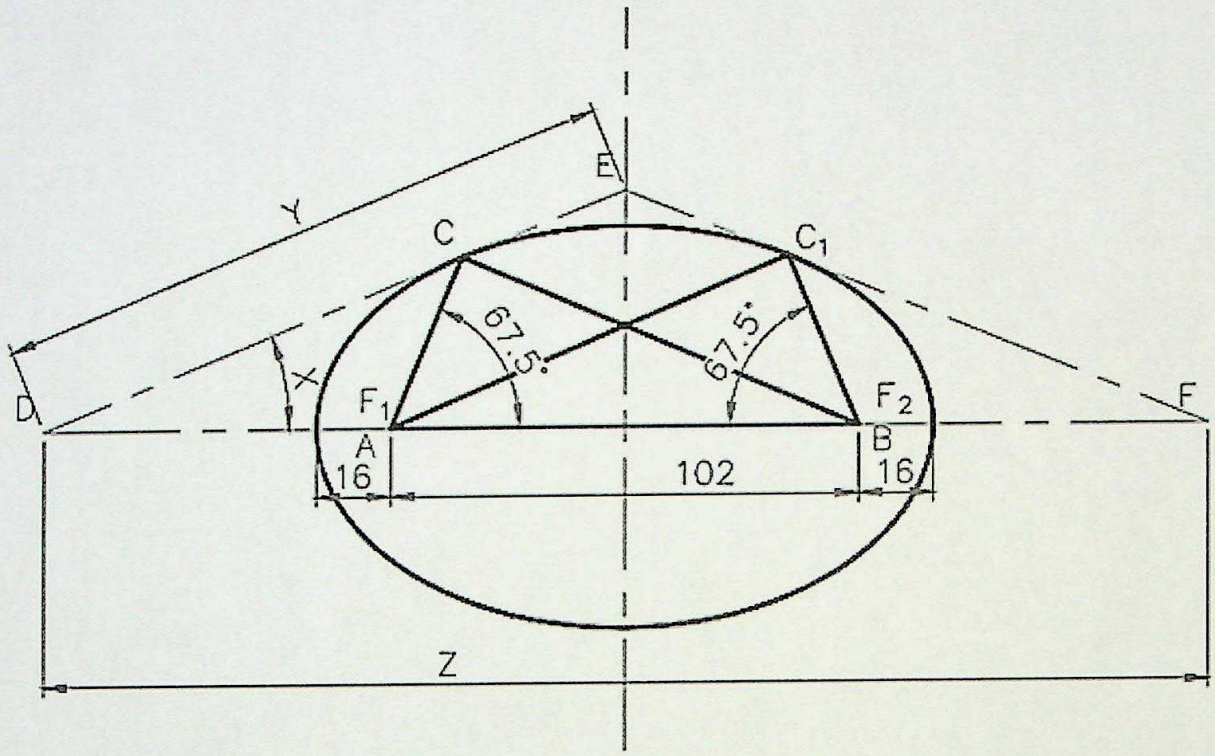


Figure Q2

Total=[20 Marks]

QUESTION 3

The figure below in **Figure Q3** shows the elevation of a swimming pool NOT TO SCALE. Copy the view clearly showing points of tangency. **[20 Marks]**

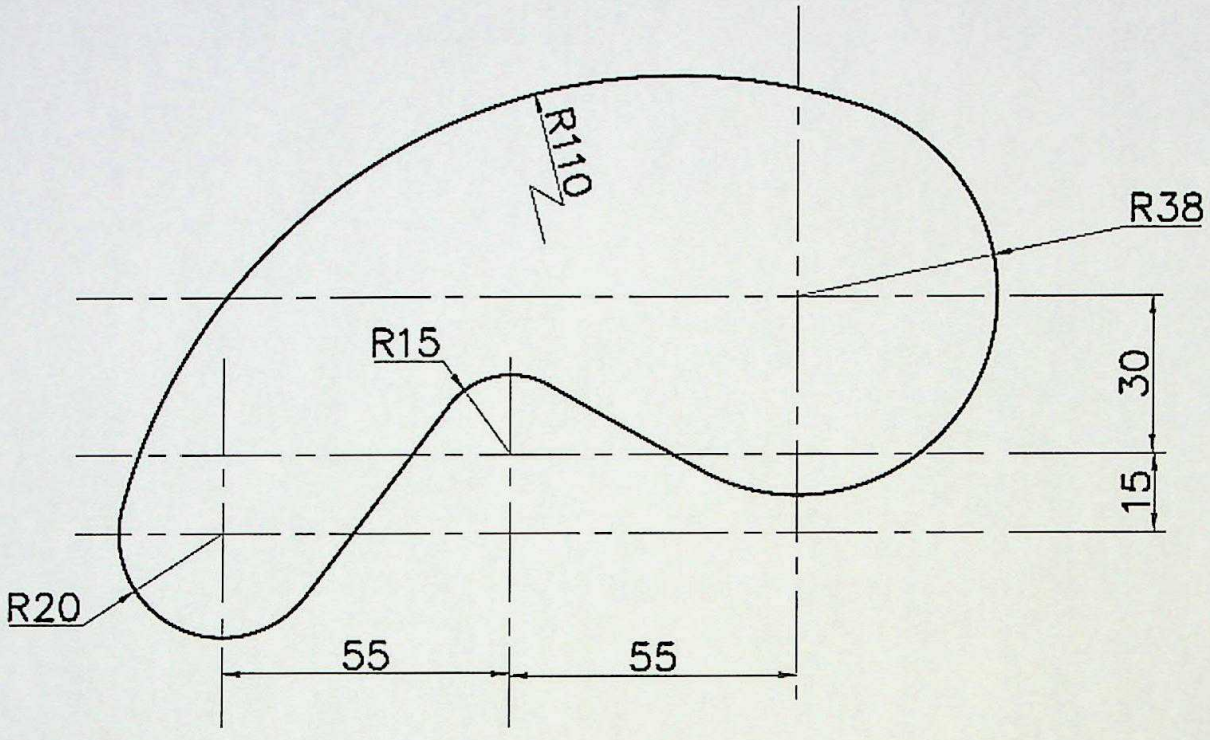


Figure Q3

Total [20 Marks]

QUESTION 4

Figure Q4 shows two views of a machine part in First Angle Projection.

(a) Draw the part in Isometric projection method with the part X as the lowest point. **[18 Marks]**

(b) Insert **two** neat Isometric dimensions. **[2 Marks]**

Do not copy these views.

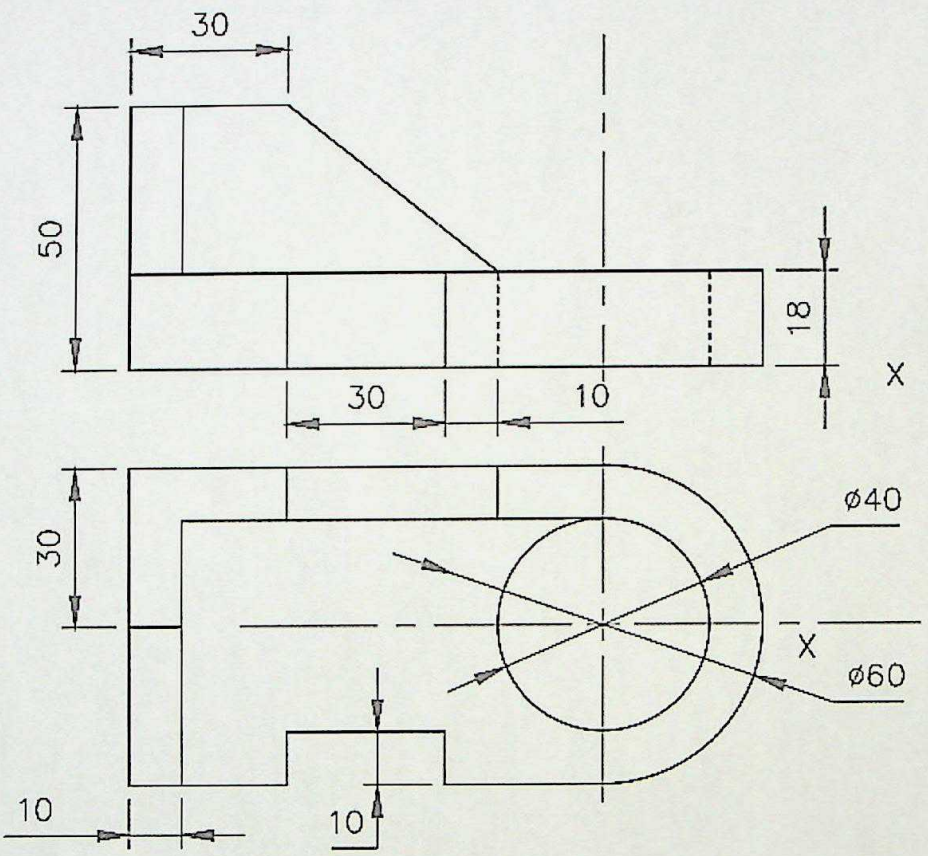


Figure Q4

Total [20 Marks]

QUESTION 5

Study the diagram in **figure Q5.**

a) Copy the elevation using your own dimensions **[6 marks]**

b) Identify the referenced items with help of the following descriptions:

(i) Straight knurling
(ii) Spur gear
(iii) Shaft flange
(iv) Taper on shaft
(v) Counter bored hole
(vi) Square on shaft
(vii) Undercut
(viii) Open coil spring (compression spring)
(ix) Shaft coupling
(x) Roller bearing element
(xi) Splined shaft
(xii) Male (external thread)
(xiii) Beating housing
(xiv) Interrupted view on shaft **[14 marks]**

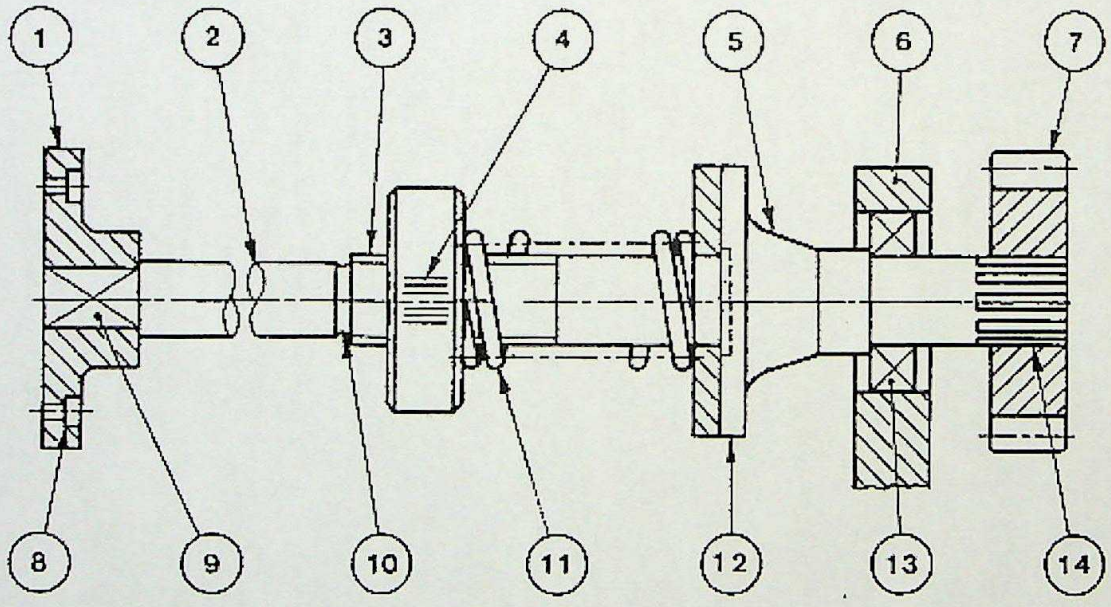


Figure Q5

Total [20 Marks]