JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

UNIVERSITY EXAMIMATION FOR THE DEGREE IN SCIENCE IN RENEWABLE ENERGY TECHNOLOGY AND MANAGEMENT

1ST YEAR 2ND SEMESTER 2023/2024 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TEB 1102

COURSE TITLE: ENGINEERING DRAWING II

EXAM VENUE: **STREAM: BSc. REN ENGY TEC & MGT**

DATE: /04/2024 **EXAM SESSION:**
DURATION: 3 HOURS

Instructions

1. **Attempt five questions in all**
2. **You must attempt all the FOUR questions in Section A and ANY TWO questions from Section B.**
3. **All construction lines must be shown.**
4. **All dimensions are in millimeters unless specified otherwise.**
5. **The intended marks for questions or parts of questions are given in brackets [ ].**
6. **Draw the MARGIN and TITLE BLOCK ON AT LEAST ONE ANSWER SHEET (4 Marks)**

SECTION A (ANSWER ALL QUESTIONS)

1. (a). Briefly explain what you understand by the following engineering terms/components. Use sketches where possible. **(8 Marks)**
   - i. Key /Key way
   - ii. Bush bearing and its housing
   - iii. Splined shafts
   - iv. Worm and wheel

2. Using free hand, sketch the a bolt and nut and indicate/explain the following; **(6 Marks)**
   - i. Pitch
   - ii. Roots
   - iii. Lead
   - iv. Double start thread

3. A slider-crank mechanism of a reciprocating engine has a crank length of 38 mm and a connecting rod of length 225 mm. Draw to scale the locus of a point P located on the connecting rod at a distance of 75 mm from the big end. **(10 Marks)**

4. (a). Outline the importance of sectioning as used in engineering drawing; hence describe the under listed types of sections; (Use sketches where possible) **(4 Marks)**
   - i. Offset section
   - ii. Revolved section

   (b). Figure 1 below shows two views of a bracket assembly block. Sketch free hand sections X-X and Y-Y. **(8 Marks)**

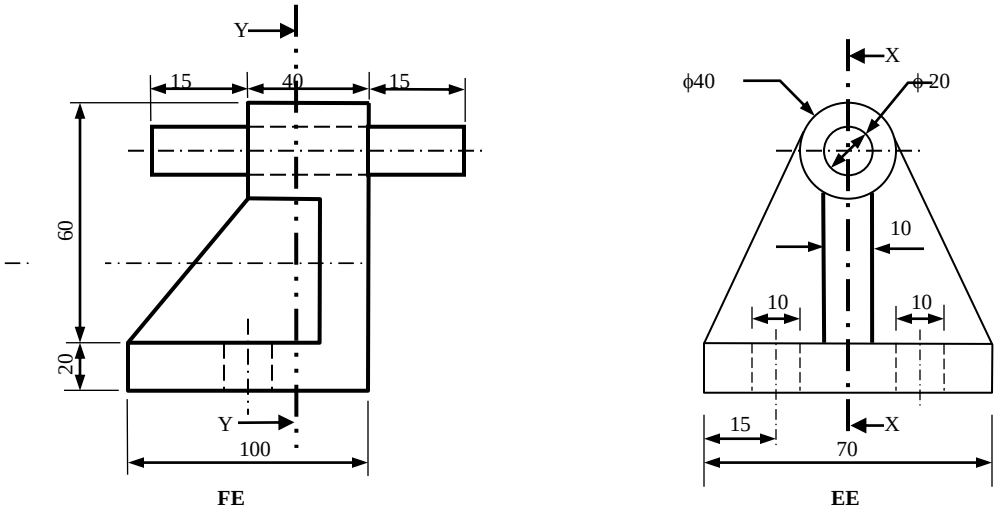

Figure 1

SECTION B (ANSWER ANY TWO QUESTIONS)

5. Use any convenient scale to draw the orthographic views of Fig. 2 shown below. (You may draw in 1st or 3rd angle projection). **(15 Marks)**

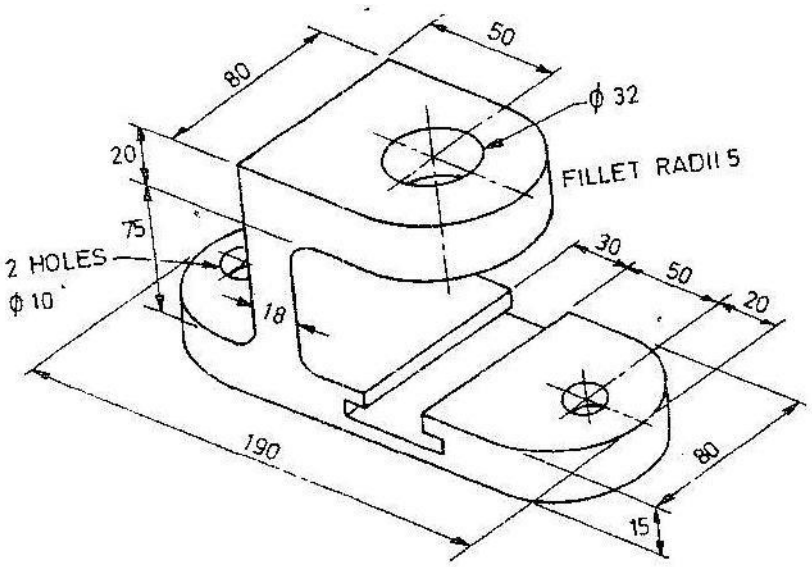

Figure 2

6. Draw to scale the isometric view of the object as shown in Figure 3 given below. **(15 Marks)**

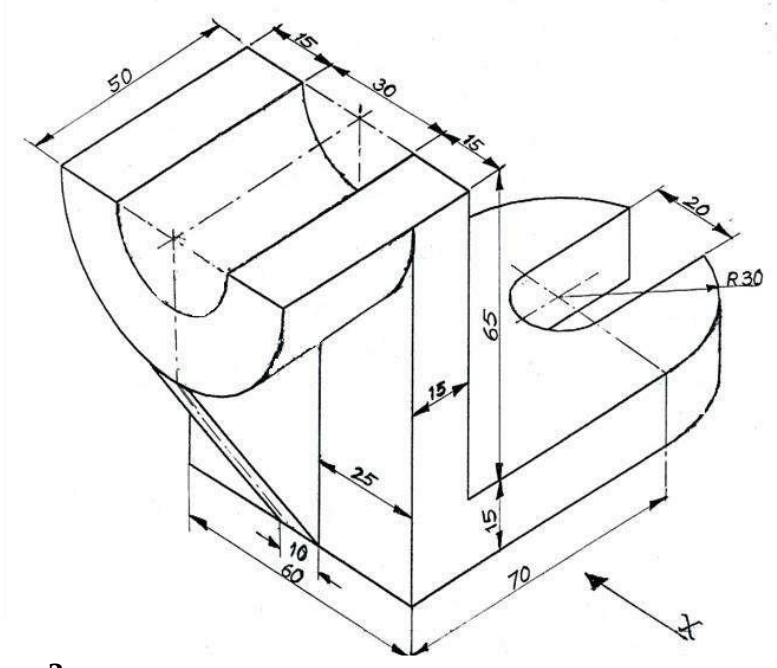

Figure 3

7. a. Sketch free hand the isometric view of the orthographic views of the object shown in figure 4 below. **(5 Marks)**

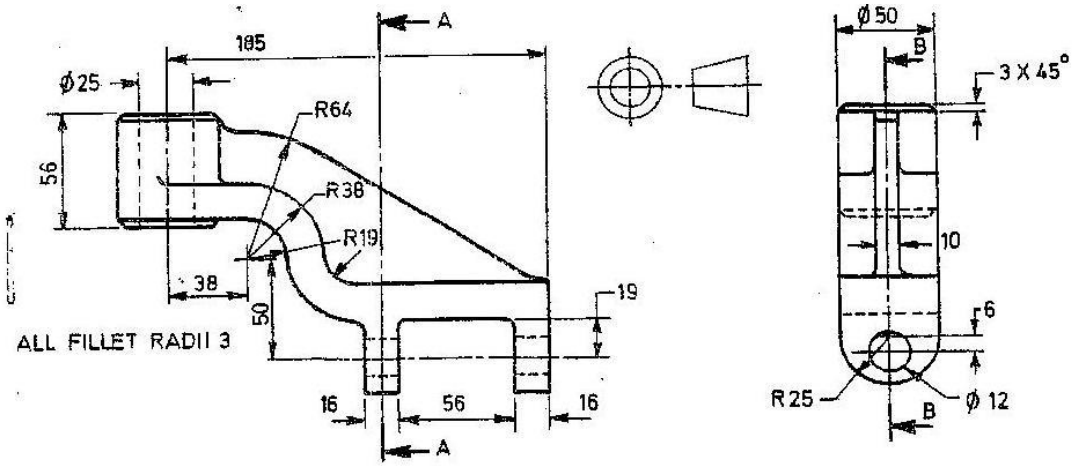

Figure 4

b. Sketch free hand the assembled isometric view of the knuckle joint shown below by its components in the diagram below **(10 Marks)**

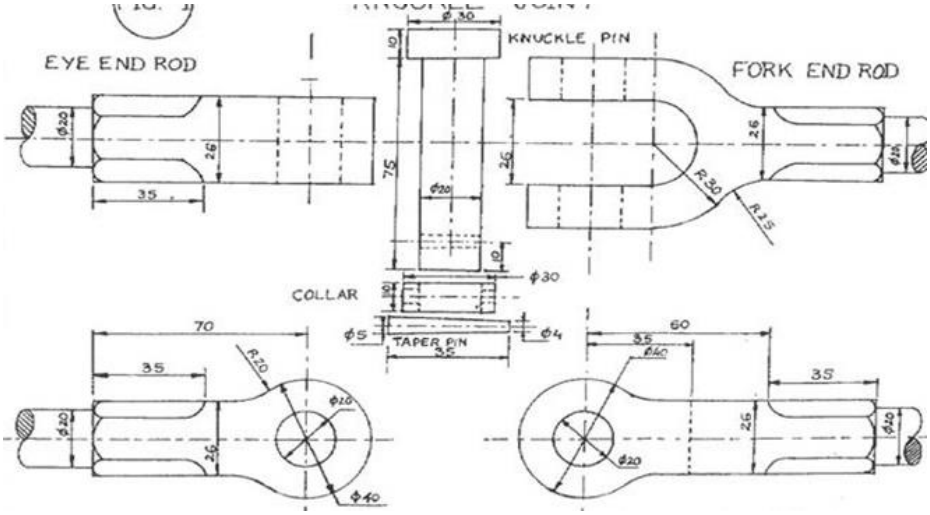

Figure 5

8. Draw freehand;
    i. The assembled isometric view of the disjointed components of the drill jig shown figure 5 below. **(10 Marks)**

    ii. Sketch freehand the orthographic views of the assembly in 3rd angle projection **(5 Marks)**

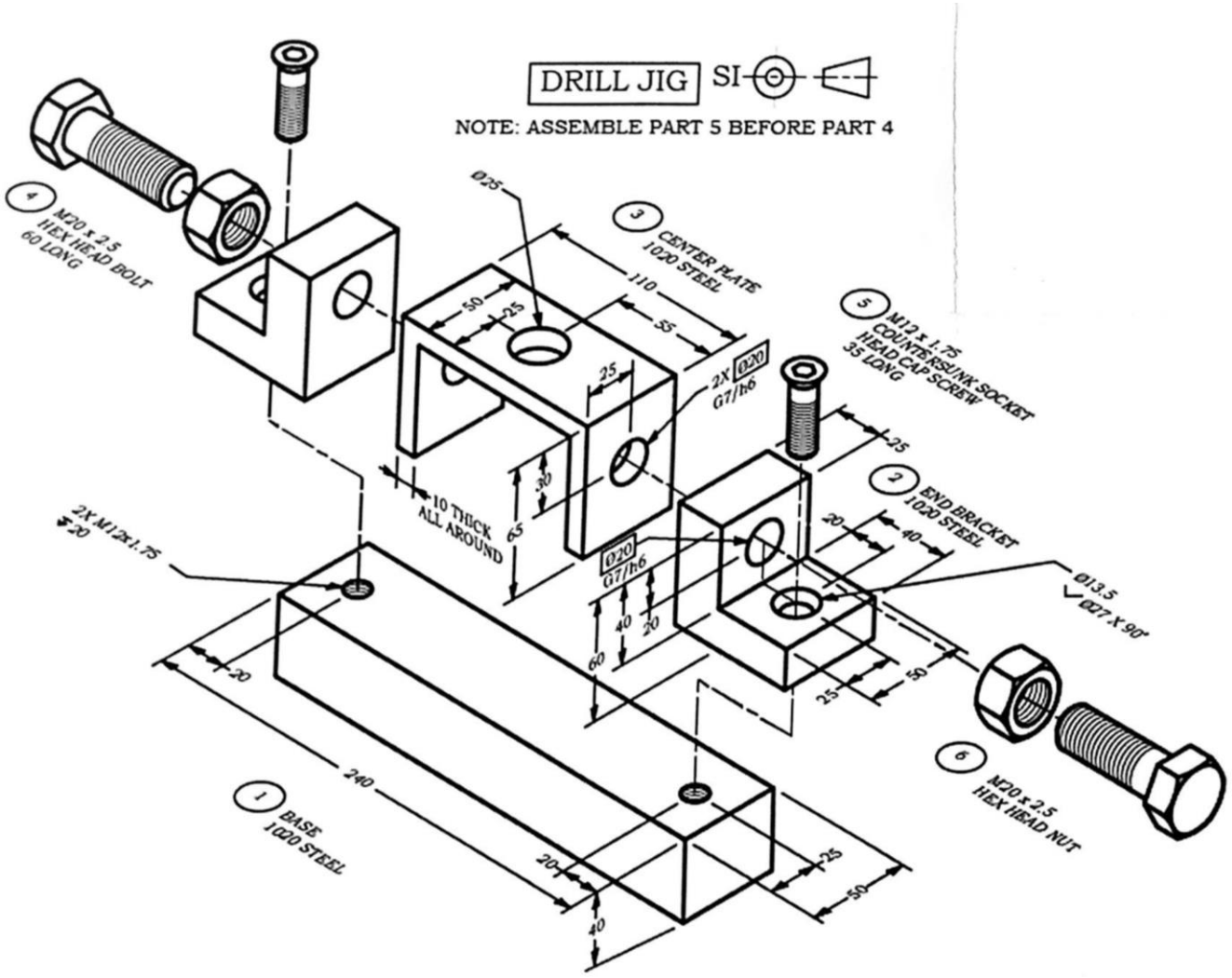

Figure 6