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UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR, TERM TWO DIPLOMA IN AUTOMOTIVE/ ELECTRICAL/MECHATRONICS/CIVIL, MECHANICAL PLANT/MECHANICAL TECH./WATER AND SANITATION, BUILDING CONSTRUCTION

ENG/CU/ME/CC/01/6/A: TECHNICAL DRAWING I

DATE: APRIL 2024

TIME: 3 HOURS

INSTRUCTIONS: Answer Question ONE and any other Three questions.

SECTION A (40 MARKS)

1. Illustrate using drawings four different types of lines in technical drawing and their respective functions. (4 Marks)
2. List and describe 5 basic tools an engineer needs during drawing (5 Marks)
3. Using a rectangle of 60mm by 40mm illustrate the difference between aligned and unidirectional system of dimensioning. (4 Marks)
4. Draw and bisect a 60° angle using a compass and ruler only (4 Marks)
5. Outline the steps in drawing a hexagon given its side length (6 Marks)
6. What does the term projection refer to in technical drawing? (2 Marks)
7. State the meaning of an orthographic projection and its purpose in technical drawing? (3 Marks)



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ISO/IEC 27001:2013 CERTIFIED

8. Identify using standard symbols the differences between first angle and third angle of projection (4 Marks)
9. Define the following terms as used in technical drawing; (4 Marks)
- (a) An arc
 - (b) a quadrant
 - (c) a sector
 - (d) a segment
10. What is meant by an isometric drawing? (2 Marks)
11. What is the purpose and application of auxiliary views in technical drawing? (2 Marks)

SECTION B – Long Answer Questions – Answer Any Questions. (60 MARKS)

12. On A3 size drawing paper, using drawing instruments draw in first angle projection the views of the block given in figure below as follows: (20 Marks)
- i. Front elevation in the direction of arrow X;
 - ii. End elevation.
 - iii. Plan.

The arrow indicates the front view

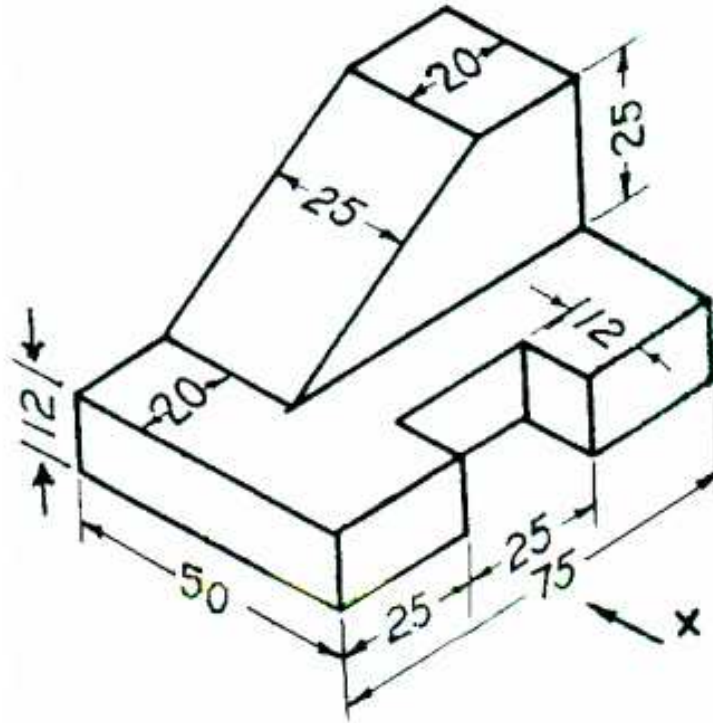
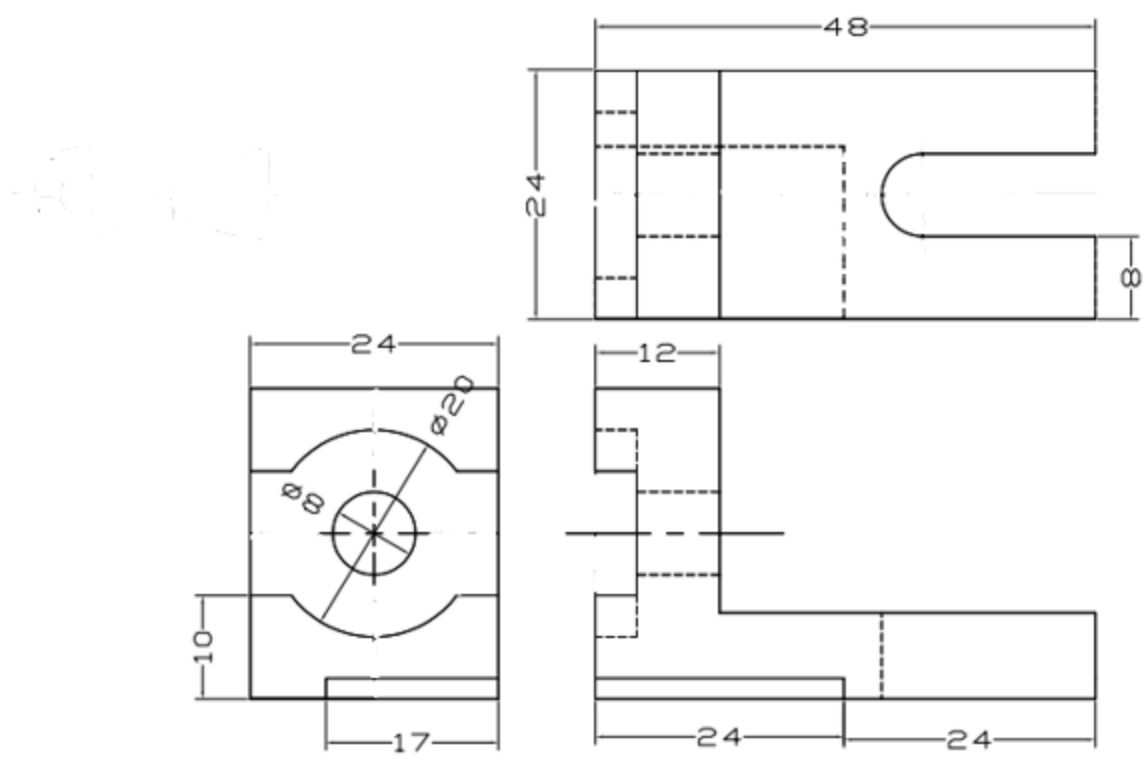


Fig: 1

13. a. Construct an ellipse with a minor diameter of 60mm and a major diameter of 100mm (10 Marks)
- b. Inscribe a regular octagon in a square with sides 80mm (10 Marks)
14. The figure below shows the three views of a shaped block in third angle orthographic projection. On A3 size drawing paper and using drawing instruments draw the pictorial view of the block. (20 Marks)



15. A rectangular hexagonal base side length 30mm and height 60mm rests on its base such that two of its sides are perpendicular to the vertical plane. It is truncated by a 30° cutting plane on its vertical axis at the 40mm mark. Draw the given front, the plan, the end elevation, the true shape, and the development of the lateral surface. (20 Marks)