TEVETA

Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN BIOMEDICAL ENGINEERING

LEVEL 6 YEAR I EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATION

SITTING: JULY/AUGUST 2025

SUBJECT: ENGINEERING DRAWING

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

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE

1. **There are FIVE (5) questions in this paper.**
2. **Question ONE (1) is compulsory and carries 40 marks.**
3. **Answer any other THREE (3) questions from the remaining four (4).**
4. **All dimensions are in mm.**
5. **Do NOT use a pen for drawing or writing on the drawing paper.**
6. **Programmable calculators and cell phones are not allowed in the examination room**

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

QUESTION ONE

a) Draw a border line and add the title block at the bottom right-hand side of the paper and include the following. **[5 Marks]**

i. Name of Institution

ii. Centre Number

iii. Examination Number

iv. NRC Number

v. Programme.

b) The object shown in **fig.1** below is a pictorial view of a support bracket for a medical laboratory. Draw, full size, the following views in first (3rd) angle orthographic projection showing clearly all hidden details;

i. Section Front elevation on X-X **[15 Marks]**

ii. Section Top view on B-B **[14 Marks]**

iii. Insert three size dimesions and three location dimension. **[6 Marks]**

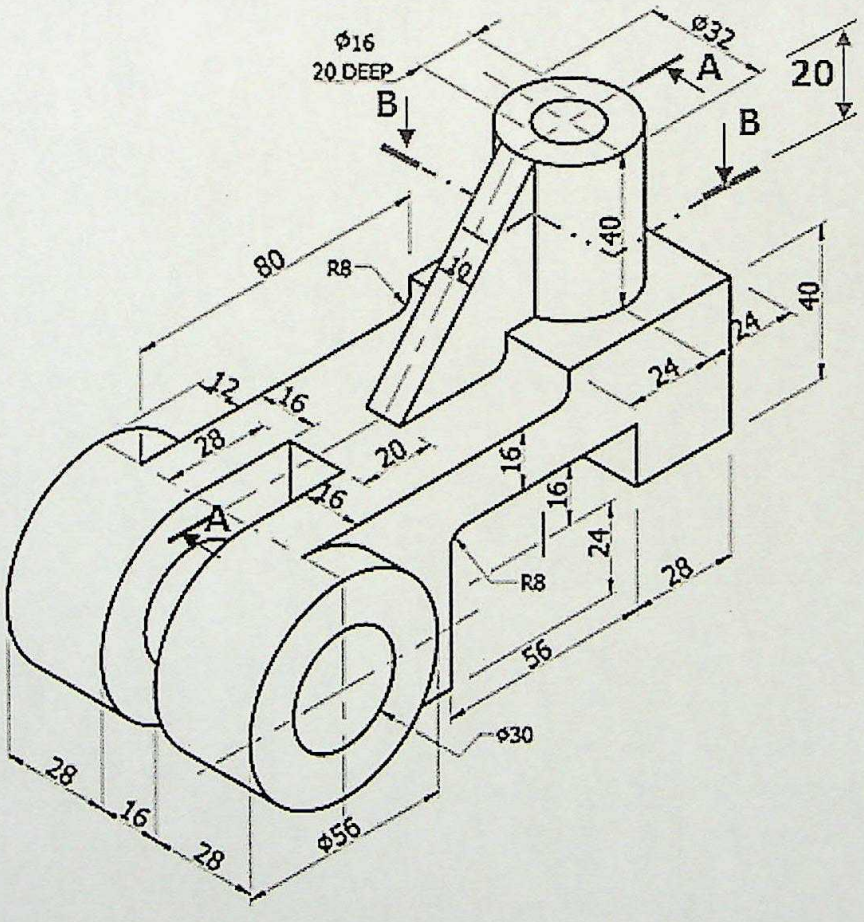


Fig.1

Total=[40 Marks]

QUESTION TWO

Fig.2 shows the elevation of a lamp shade ABCDEF. Draw, full size, the given elevation showing clearly all constructions used to determine the center of the arc BCD and the 90^0 angle AFE.

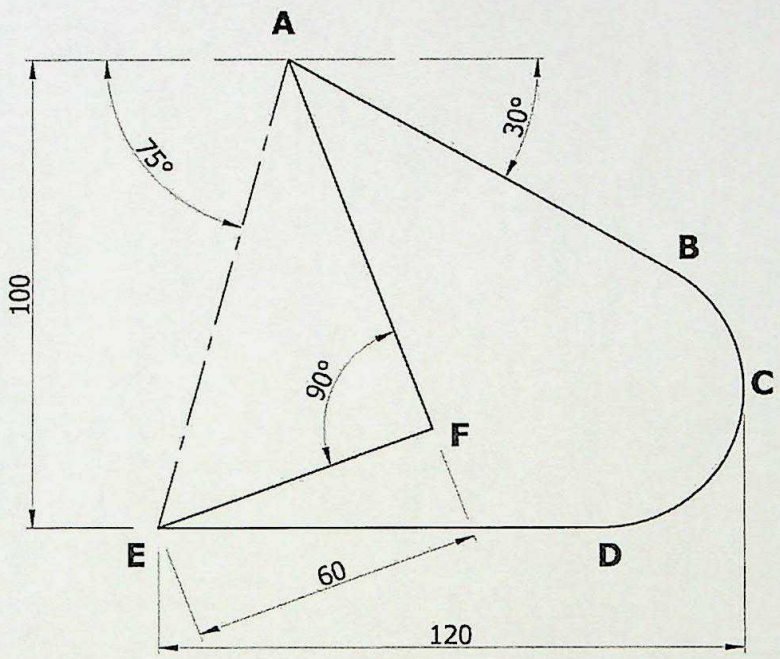


Fig.2

Total=[20 Marks]

QUESTION THREE

Fig.3 shows the profile of a fish pond. ABC is elliptical with major axis 120 mm and minor axis 60 mm. Straight line CD is tangential at C. Copy the given figure full size.

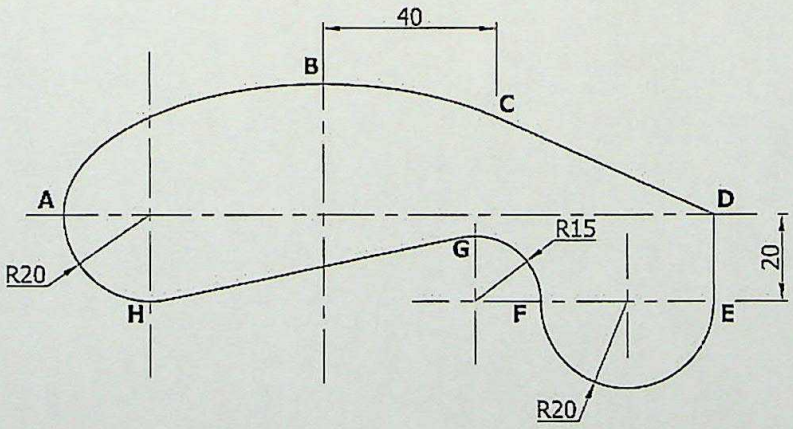


Fig.3

Total=[20 Marks]

QUESTION FOUR

Fig.4 shows two views of a sliding block drawn in first (1 st) angle orthographic projection. Draw full size, an isometric view taking L as the lowest point.

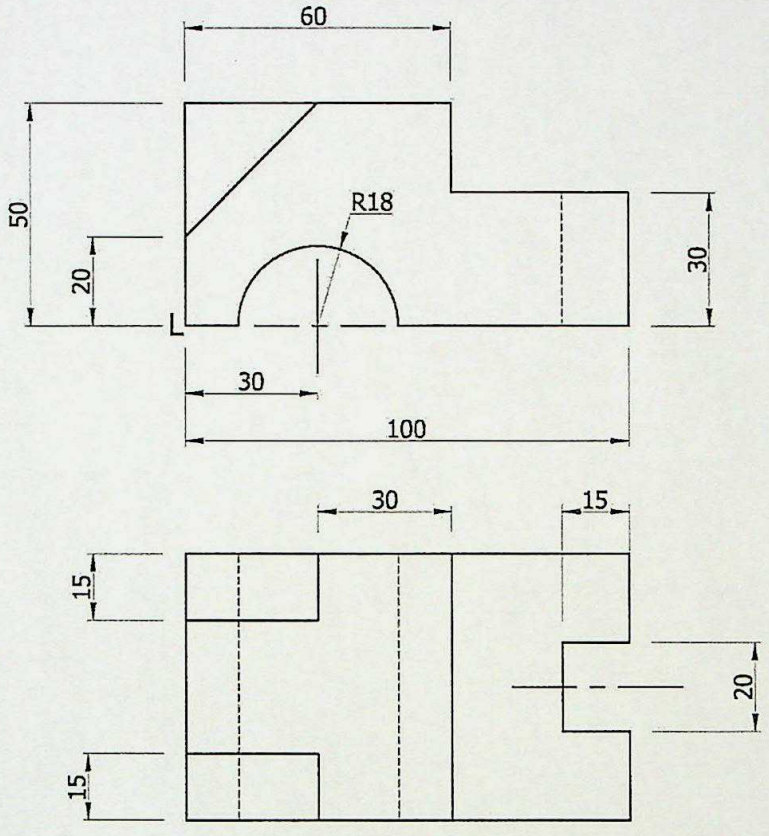


Fig.4

Total=[20 Marks]

QUESTION FIVE

a) Give full meanings of the following abbreviations as used in process & Instrumentation Diagrams (P&ID);

(i) FC. [1 Mark]
(ii) LC. [1 mark]
(iii) FE. [1 mark]
(iv) TIC. [1 mark]
(v) SDV. [1 mark]
(vi) PC. [1 mark]

b) Fig.5 shows a process and instrumentation diagram of a system. Reproduce this diagram using an appropriate scale and write down full names of the labeled parts.

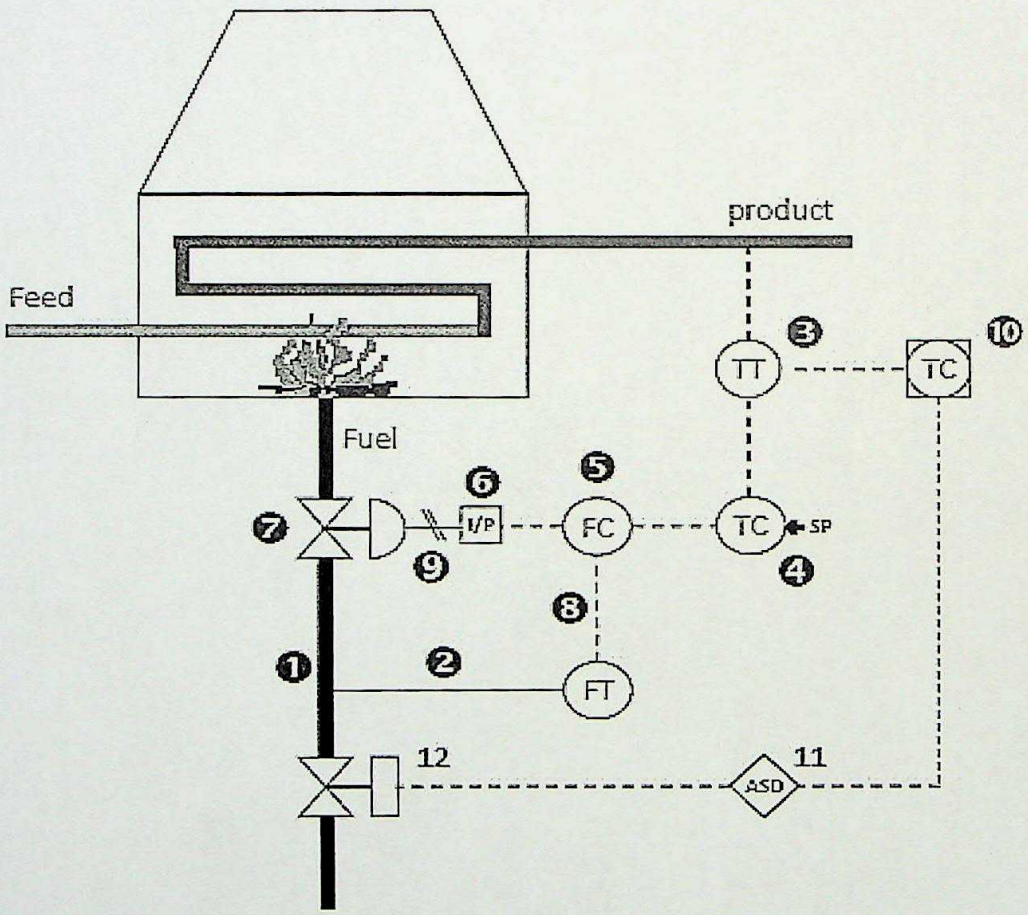


Fig.5

[14 Marks]
Total=[20 Marks]

25