

SECTION B(48 marks)

Answer any four questions from this section.

- 11 Figure 2 shows two views of a block drawn in first angle projection. On the grid paper provided, draw an isometric view of the block taking point X as the lowest point. (12 marks)

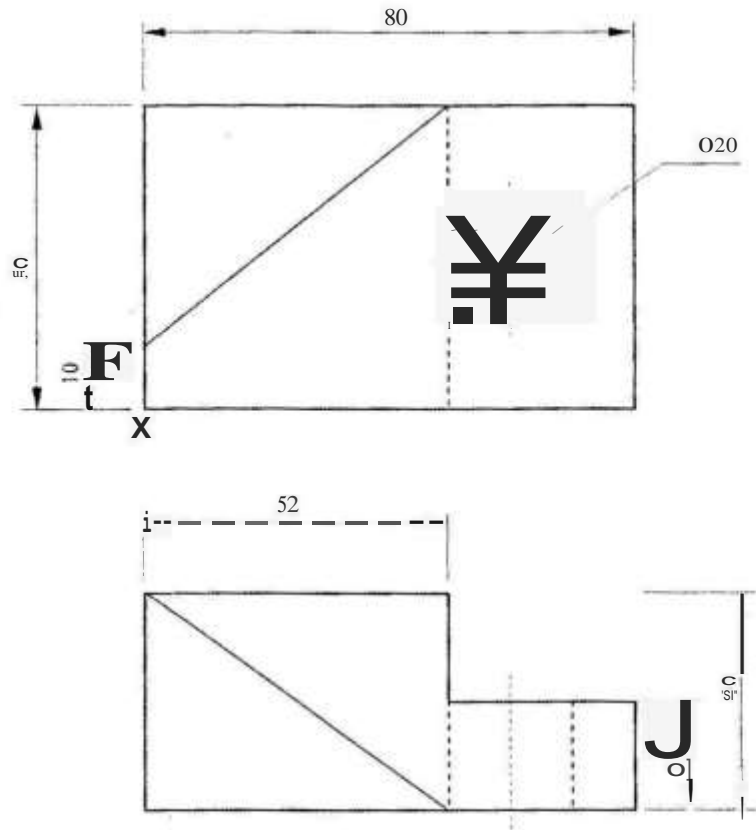


Figure 2

- 12 Figure 3 shows an R-L circuit.

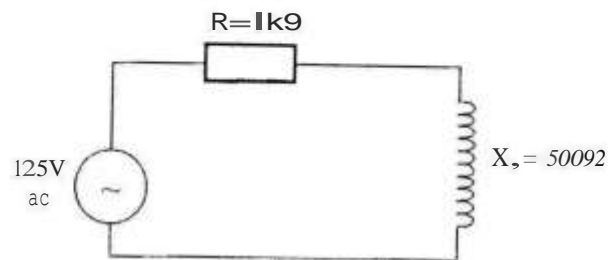


Figure 3

Calculate:

- (a) circuit impedance;
- (b) circuit current;
- (c) voltage drop across the inductor;
- (d) apparent power;
- (e) true power;
- (f) power factor. (12 marks)

13 (a) Name **two** types of controlling devices used in measuring instruments. (2 marks)

(b) State **three** advantages of permanent magnet moving coil instrument over moving iron instrument. (3 marks)

(c) A meter movement has resistance of a 29 full scale deflection current of 200mA.

(i) Calculate the value of the resistor to enable it to measure:

- I voltage upto 10 volts
- II current upto 10 amperes

(ii) Draw the circuit diagram in each case. (7 marks)

14 (a) Draw a labelled circuit diagram of a capacitor-start induction motor. (3 marks)

(b) With the aid of a labelled circuit diagram, explain the operation of a buzzer. (9 marks)

15 Figure 4 shows a resistive circuit.

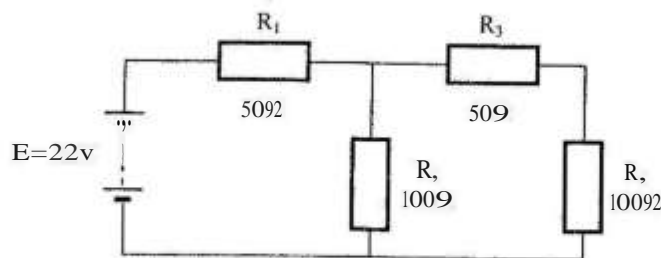


Figure 4

- Calculate:
- (a) the total resistance of the circuit.
 - (b) the voltage drop across R_2 . (12 marks)