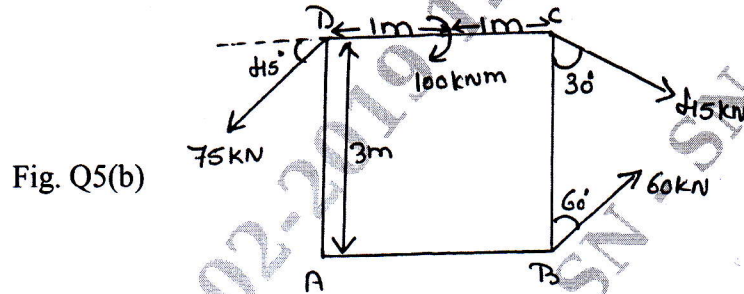




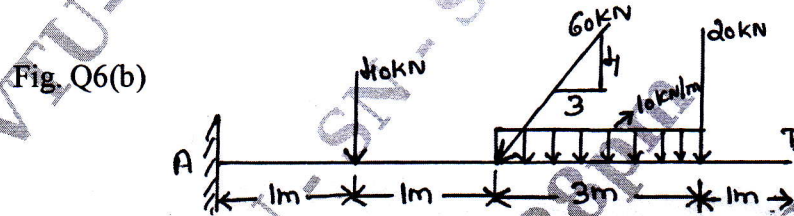
**MODULE - 3**

- 5 a. Define Couple. Explain the characteristics of couple. (05 Marks)  
 b. Find the magnitude and direction and distance of the resultant from the point 'A' for the system of forces shown in fig.Q5(b). (15 Marks)



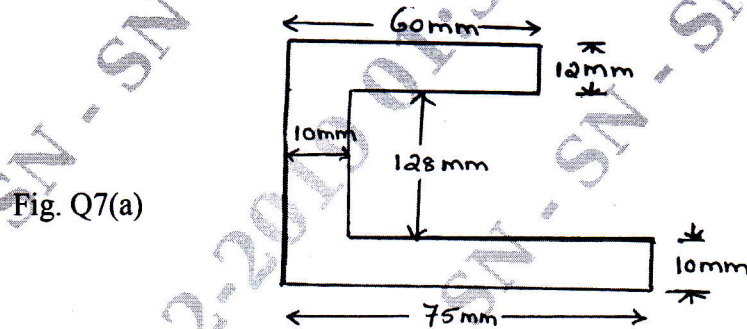
OR

- 6 a. With neat sketches, explain different types of supports and loads. (10 Marks)  
 b. Determine the support reactions for the beam shown in fig.Q6(b). (10 Marks)

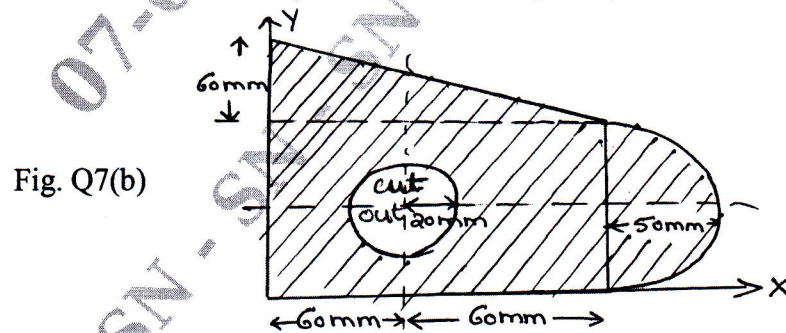


**MODULE - 4**

- 7 a. Locate the centroid of composite section shown in fig.Q7(a). (10 Marks)



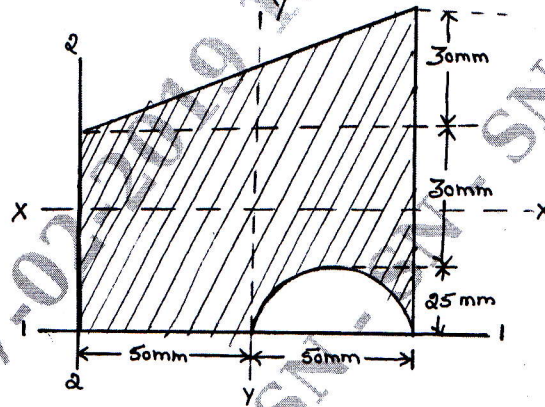
- b. Locate the centroid of shaded portion shown in fig. Q7(b). (10 Marks)



OR

- 8 a. State and explain parallel axis theorem. (05 Marks)  
 b. Find the least radius of gyration about X - axis and Y - axis of the shaded area shown in fig.Q8(b). (15 Marks)

Fig. Q8(b)



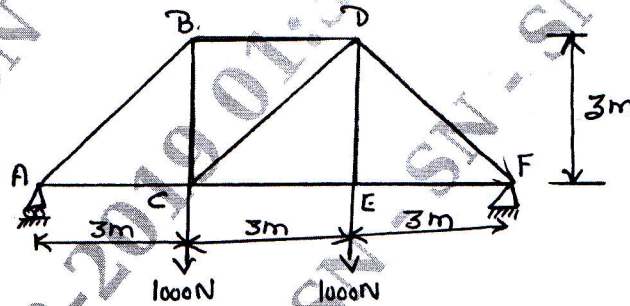
**MODULE - 5**

- 9 a. Briefly explain the methods used to analyze the truss by method of Joints. (11 Marks)  
 b. Explain the following : (09 Marks)  
 i) Perfect frame      ii) Deficient frame      iii) Redundant frame.

OR

- 10 Analyse the truss shown in fig. Q10 by the method of joints. Tabulate the result and indicate the nature of force in the truss. (20 Marks)

Fig. Q10



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