

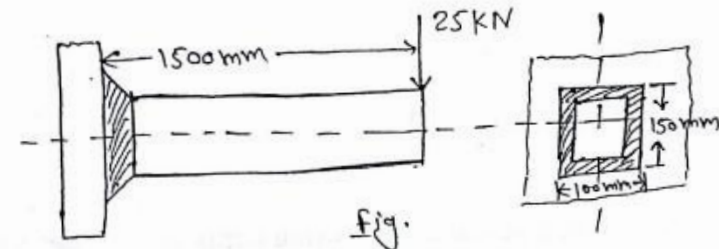
FT - 503**B.E. V Semester**

Examination, December 2012

Machine Drawing and Design*Time : Three Hours**Maximum Marks : 70/100*

Note: Attempt five questions.
All questions carry equal marks.
Assume suitable data wherever necessary.

- I. A Rectangular cross section bar is welded to support by fillet welds as shown in fig. determine the size of welds, If the permissible shear stress in the weld is limited to 75 MPa.

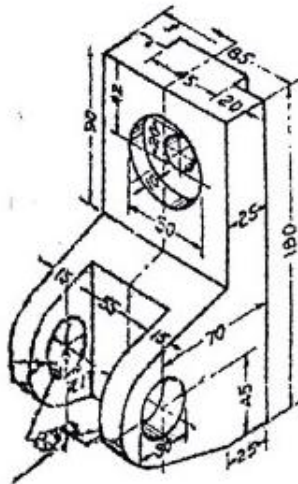


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- II. A triple riveted joint (lap) is to be made between 6.5 mm plates, the allowable stresses $F_t = 35 \text{ N/mm}^2$, $F_s = 29.00 \text{ N/mm}^2$, $F_c = 52.5 \text{ N/mm}^2$. Calculate the rivet diagram, rivet pitch and back pitch, zig-zag riveting is to be used. Also indicate how the joint will fail.

[2]

- III. Draw the detailed assembly drawing for an footstep bearings.
Draw its front and top view. **rgpvonline.com**
- IV Draw front view, sectional side view and top view of the following fig. All the dimension in fig. is mm.



- (a) Write the advantages and disadvantage of CAD.
- (b) What do you mean by 2D & 3D modelling.

- VI Write a short notes on the following terms
- (a) Product data rgpvonline.com
 - (b) Bill of material
 - (c) Plotting Techniques
 - (d) Product life cycle management

[3]

- VII Design and Draw a cotter joint to support a load varying from 30 kN in compression to 30 kN in tension. The material is carbon steel for which the following allowable stresses may be used. The load is static.
- Tensile Stress = Compressive Stress = 50 MPa
- Shear Stress = 35 MPa
- Crushing Stress = 90 MPa.
- VIII Design a knuckle joint to transmit 150 kN. The design stress may be taken as 75 MPa in tension, 60 MPa in shear and 150 MPa in compression.

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