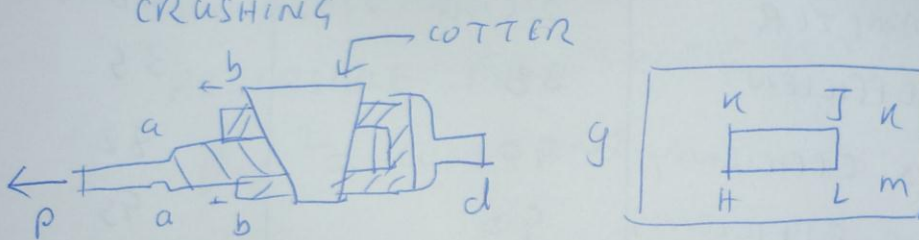


Q5 IN THE JOINT SHOWN, IF THE DIAMETER OF THE ROD IS 5 cm AND THE THICKNESS OF THE COTTER 1.25 cm - FIND THE OTHER DIMENSIONS REQUIRED SO THAT THE STRENGTH SHALL BE AGAINST ALL TYPES OF FAILURE PERMISSIBLE STRENGTHS ARE  $300 \text{ N/mm}^2$  TENSION  $150 \text{ N/mm}^2$  SHEAR IN THE MEMBERS  $225 \text{ N/mm}^2$  IN COTTER AND  $450 \text{ N/mm}^2$  CRUSHING



Q6 IN A DOUBLE RIVETTED LAP JOINT OF PLATES  $15 \text{ mm}$  THICK, THE RIVETS ARE  $21 \text{ mm}$  DIAMETER AND THE PITCH IS  $60 \text{ mm}$  THE SHEARING STRENGTH OF THE RIVET MATERIAL IS  $345 \text{ MN/m}^2$  AND THE TENSILE STRENGTH OF THE PLATE IS  $420 \text{ MN/m}^2$ . FIND THE % EFFICIENCY OF THE JOINT COMPARED WITH THE RIVET PLATE