

MCL736/421: Automotive Design

MINOR I

07/02/19, MAX TIME: 60 MINS

MAX MARKS: 70

YOU CAN STATE AND MAKE ANY ASSUMPTIONS THAT MIGHT BE NECESSARY

- Q 1 What is the importance of injury coding? What are the meanings of the different digits in the 7-digit injury code? Define the MAIS and the ISS codes? [10]
- Q 2 Describe a lumped mass system for simulating a frontal impact when the car hits a rigid wall. Clearly mention the components you are modeling and the target parameter which your model is designed to predict. [15]
- Q 3 For a sheet metal joint using spot welds (between two box sections A and B, see Fig 1 below), discuss how the loads (bending, shear and torsion) coming on member B would be borne by the joint. Discuss how the member B and the joint can be designed and how the number of spot welds can be decided considering these loads [20]
- Q 4 Consider the section in Figure 2. Compute the different moment of inertias of the section. [15]
- Q 5 Consider yourself a stylist. Make a process chart for a new car development. [10]

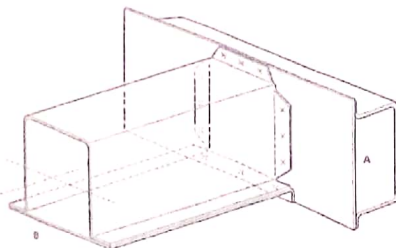


Fig 1

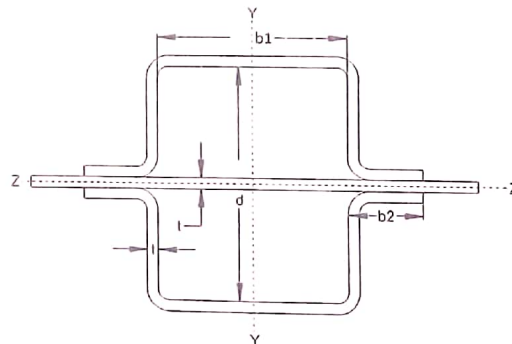


Fig 2