

GUJARAT TECHNOLOGICAL UNIVERSITY**DIPLOMA ENGG.- Vth SEMESTER-EXAMINATION – JUNE- 2012****Subject code: 355501****Date: 04/06/2012****Subject Name: Fabrication Design****Time: 10:30 am – 01:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic

- Q.1** (a) Explain the Factors Affecting Selection Of Materials **07**
 (b) A cast iron column has internal diameter of 200 mm. what should be the minimum external diameter so that it may carry a load of 1.6 MN without exceeding the stress 90 N/mm^2 **07**

- Q.2** (a) Find the center of gravity of a 15 cm X 20 cm X 5 cm T section **07**
 (b) Explain stress concentration. Explain reducing stress concentration method with neat sketch. **07**

OR

- Q.3** (b) Write brief note on 'moment of inertia'. **07**
 (a) Explain failure of riveted joint with neat sketch. **07**
 (b) A plate 120 mm wide and 15 mm thick is to be welded to another plate by means of parallel fillet welds. The plates are subjected to a load of 70 KN. Find the length of the weld so that the maximum stress does not exceed 60 N/mm^2 . Consider the joint first under static loading and then under fatigue loading. Take stress concentration factor = 2.7. **07**

OR

- Q.3** (a) Explain strength of welded joint in the following cases: **07**
 (1) Circular fillet weld subjected to torsion
 (2) Circular fillet weld subjected to bending moment
 (b) A double riveted double cover butt joint in plates 20 mm thick is made with 25 mm diameter of rivet at 100 mm pitch. Permissible stresses are $F_t = 120 \text{ N/mm}^2$ $F_s = 100 \text{ N/mm}^2$ $F_b = 150 \text{ N/mm}^2$. Calculate efficiency of joint with neat sketch. **07**

- Q.4** (a) Discuss in details the design of various types of heads and closers for vessels as per codes. **07**
 (b) Discuss the Design preliminaries of pressure vessels as per ASME Sec-VIII **07**

OR

- Q. 4** (a) Give the classification of various types of supports used in pressure vessels. And draw neat sketches of each. **07**
 (b) Explain briefly the codes and standards used for manufacturing and testing of process equipments. **07**

- Q.5** (a) Write the classification of various types of structures. **07**
 (b) Explain in details the factors affecting design of structures. **07**

OR

- Q.5** (a) Explain with suitable examples bending moments shear force diagrams. **07**
 (b) Explain the basic steps in structure design like Transmission tower. **07**
