

B. Construction Engineering 4th Year 2nd Semester Examination 2018

Fabrication Technology

Time : Three hours

Part I

Full Marks : 100

Answer All Questions. Maximum Marks is 50

Answer should be **to the point** and explained with **neat sketches**

1. a) Write down the sequence of activities in **shop Fabrication**. [CO1] 5
 OR
 b) Discuss the **Tensile test** and the behaviour of structural steel. [CO1] 5
2. Discuss the following activities
 - i. Different methods of **Cutting & Machining** in shop fabrication [CO2] 10
 Or
 - ii. a) **Quality Control** in Fabrication [CO2] 5
 b) Discuss the role of **Vertical Bracings** in Steel Structures [CO2] 5
3. Discuss different **fastening techniques** at present for making joints. [CO3] 5
4. a) i) What are the factors affecting the **quality of weld** connections? [CO4] 5
 ii) What do you mean by **Weldability** of Steels and discuss **HAZ**. [CO4] 5
 b) i) Discuss on "**Edge Preparation**" of Butt Weld with sketches. [CO4] 5
 ii) What are the factors on which the edge preparation depends [CO4] 5

Or
5. a) What are the **common defects in Welds** and discuss each in brief [CO4] 10
 b) i) Discuss **Residual Stresses and Distortion** in weldments. [CO4] 5
 ii) Mention the classification of Distortion and its **Remedial Measure** [CO4] 5
6. a) Discuss **Welding Inspection** & mention steps to achieve **Weld Quality**. [CO5] 5

OR

 b) What are different methods including **NDT techniques** for Welding? [CO5] 5
7. a) What are the different **Corrosion Prevention** approaches in steel structures? [CO6] 5

OR

 b) Write down the sequence of different activities in **Field Erection**. [CO6] 5

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Part II

Answer All Questions. Maximum Marks is 50

- 1) Explain preparation of fabrication drawing highlighting edge distance, end distance and gusset plate. [CO1] [5]
- 2) Explain different drilling techniques generally used for fabrication. What is gauge length? What do you mean by marking drawing? [CO2] [5+2+3]
- 3) Describe the load transfer mechanism from the column to the concrete at the columns base highlighting the effect of holding down bolt, the shear key and stiffeners. [CO3] [15]
- 4) A 25 mm diameter holding down bolt is subjected to a tension of 100kN and a shear force of 30kN. Check suitability of the bolt if the bolt is used only for tension and also if the bolt is used for both tension and shear. [CO3] [4+6]

Or

Describe in detail along with neat sketch of a typical shear connection and moment connection detail generally used in steel structure. What is lug angle?

[CO3] [8+2]

- 5) Describe how DP test is performed at site for welding quality checking. [CO5] [5]
- 6) What do you mean by galvanization? How galvanization is used as corrosion preventive in steel structure? [CO6] [2+3]