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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech III Year II Semester Supplementary Examinations February-2022**

**DESIGN & DRAWING OF STEEL STRUCTURES**

(Civil Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Define welding. Explain various types of weld connections with neat sketches. 7M  
b What are the advantages and disadvantages of welded connections? 5M

**OR**

- 2 a Explain about the strength of a Riveted joint. 6M  
b A 20mm thick plate is joined to 18mm plate by 200 mm long(effective) butt weld. 6M  
Determine the strength of joint if a Single V butt weld is used.

**UNIT-II**

- 3 Design a Splice to connect a 300X20 mm plate with a 300X10mm plate. The design load is 500KN .Use 20mm black bolts of grade 4.6 ordinary bolts fabricated in the shop. 12M

**OR**

- 4 A tension member of a roof truss carries a factored axial tension of 430 KN. Design the section and its connection using lug angle. 12M

**UNIT-III**

- 5 A column 4 m long has to support a factored load of 6000 KN. The column is effectively held at both ends and restrained in direction at one of the ends. Design the column using beam sections and plates. 12M

**OR**

- 6 A column section ISHB 300 @ 577 N/m is carrying a factored load of 600 KN. A factored moment of 30 KN-m and factored shear force of 60 KN. Design a suitable column splice. Assume ends are milled. 12M

**UNIT-IV**

- 7 Design a beam 4m effective length subjected to 50 KN/m UDL (Including self weight) the flanges are embedded in slab and simply supported at both the ends. 12M

**OR**

- 8 When a SSB of 6 m effective span carrying a total factored load of 40 KN/m. The depth of beam should not exceed 500 mm. the compression flange of the beam is laterally supported by floor construction. Assume stiff end bearing is 75 mm. 12M

**UNIT-V**

- 9 A roof truss shed is to be built in Lucknow for an industry. The size of shed is 24 m X 40 m. The height of building is 12 m at the eaves. Determine the basic wind pressure. 12M

**OR**

- 10 Define a roof truss and also draw neat sketches on types of roof trusses. 12M

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