Kaushal Kumar

Roll No.....

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MAKE-UP EXAMINATION- April 2018

B-Tech VIth Semester

COURSE CODE: 10B11CE611 MAX. MARKS: 25

COURSE NAME: Design of Steel Structures

COURSE CREDITS: 4 MAX. TIME: 1.5 Hrs

Note: *(i) All questions are compulsory.*
(ii) Carrying of mobile phone during examinations will be treated as case of unfair means.
(iii) ***IS-800:2000*** *and* ***IS-808:1989*** *are allowed.(Sharing of codes is strictly prohibited)*

Course Objectives

CO-1 Design bolted and welded connections
CO-2 Design tension and compression members.
CO-3 Design beams and beam columns
CO-4 Design built up members and column base
CO-5 Design of Plate Girder

Q1. Design a Lap joint between two plates of size 120 x 12 mm thick and 100 x 12 mm thick so as to transmit a factored load of 80 kN using a single row of M20 bolts of grade 4.6 and grade 410 plates.. ***CO-1*** **[6 Marks]**

Q2. A tie member of roof truss consists of two ***ISA 100x100x8 mm***. The angles are connected to either side of a 10 mm thick gusset plate and member is subjected to a factored pull of 600 KN. Design a welded connection (shop welded) ***CO-1,CO-2*** **[6 Marks]**

Q3. Calculate the *Design compressive load* for a strut ***ISHB 350 @ 710.2 N/m*** , height of the column is 3.5 meter. The column is restrained in direction and position at both the ends. Assume that fy = 250 MPa, fu = 410 MPa and E = 200000 MPa. ***CO-2*** **[6 Marks]**

Q4. The bottom chord tie member of a truss has to withstand a factored tension equal to 480 kN. Design a double angle section for the same. The angles are connected to 10mm thick gussets at the ends. Design the connection detail also. Draw a detailed sketch.

CO-2 **[7 Marks]**