Bachelor of Architecture - Second Year - Second Semester-18

THEORY OF STRUCTURE-II
PART-I

Time: Three Hours

Full Marks 100
(50 marks for each part)

Use a separate Answer-Script for each part

[Relevant IS code and section hand books are allowed in the exam hall. For all questions assume f_y=250 N/mm^2 and f_u=410 N/mm^2.]

No. of questions	Part I (Answer Any Two of the following questions.)	Marks (2X25=50)
1(a)	Design a compression member whose both ends are hinged and length is 4 m. The axial factored load is 300 kN.	17
(b)	Discuss about limit state method of design, working stress method d of design.	8
2 (a)	Design a lap joint to transmit 450 kN using M16 bolts of grade 4.6 and grades of plate is fy=250,fu=410.	10
(b)	Design weld connection of a truss member for factored load 200 kN for 80X80X6 truss member.	10
(c)	Write a note on block shear failure.	5
3 (a)	Single equal angle 100X100X6 connected to a 8mm thick gusset plate at the ends with five 16 mm diameter bolts to transfer tension. Design tensile strength of angle.	17
(b)	Write a note on type of bolt connection.	8

BACHELOR OF ARCHITECTURE SECOND YEAR
SECOND SEMESTER EXAM-2018

Subject: THEORY OF STRUCTURES-II   Time: Three Hours   Full Marks 100

PART –II   (50 marks for each part)

Use a separate Answer-Script for each part

[IS 456:2000 is allowed in the exam hall. Assume reasonable values of any data not given but required for design.]

No. of questions	Part II (Answer question No.1 any three from question No. 2 to 5)	Marks (5+15x3)=50
1.	Write short note. Assumptions of limit state of collapse.	5
2.	What do you know about under reinforced and over reinforced section and deduce the moment resistance formula of a singly reinforced beam in limit state method?	5+10=15
3.	Design a short column, square in section, to carry an axial load 1250 kN using M20 grade concrete and Fe 415 grade steel. Draw the reinforcement details.	15
4.	Design a simply supported RCC slab for an office having clear dimensions of 3.5 m by 7.5 m with 200 mm walls all around. Adopt M20 grade concrete and Fe 415 grade of steel. Draw the reinforcement details.	15
5.	Design (for maximum moment only) a singly reinforced RCC simply supported beam having an effective span 4 m. The beam is carrying a load of 16 KN/m, including its own weight. Use M20 grade concrete and Fe 415 grade steel. Draw the section with reinforcement detail.	15