

BACHELOR OF ARCHITECTURE EXAMINATION, 2017(2nd Year, 2nd Semester)**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/mm² and $f_u=410$ N/mm².]

No. of questions	Part I (Answer Any Two of the following questions.)	Marks (2X25=50)
1(a) (b)	Design a compression member whose effective length is 3.5 m. The axial factored load is 500 kN. Discuss about limit state method of design, working stress method?	17 8
2 (a) (b) (c)	Design a lap joint to transmit 100 kN using M16 bolts of grade 5.8 and grades of plate is $f_y=250, f_u=410$. Design weldconnection of a truss member for factored load 200 kN for 75X75X6 truss member. $f_y=250, f_u=410$. Write a note on type of weld connection.	10 10 5
3 (a) (b)	Single equal angle 100X100X6 connected to a 8mm thick gusset plate at the ends with six 16 mm diameter bolts to transfer tension. Design tensile strength of angle. Write a note on failure of tension member.	18 7

B.E. ARCHITECTURE SECOND YEAR SECOND SEMESTER EXAM-2017**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. Under reinforced, over reinforced and balanced section.	5
2.	Discuss about limit state of collapse and serviceability and deduce the moment resistance formula for a singly reinforced beam section in limit state method.	5+10=15
3.	Design (for maximum moment only) a singly reinforced RCC cantilever beam having an effective span 3m. The beam is carrying a load of 14 KN/m, including its own weight. Use M20 grade concrete and Fe 415 grade steel. Draw the section with reinforcement detail.	15
4.	Design a simply supported RCC slab for an office having clear dimensions of 3.5 m by 9 m with 250 mm walls all around. Adopt M20 grade concrete and Fe 415 grade of steel. Draw the reinforcement details.	15
5.	Design a short column, square in section, to carry an axial load 1800 kN using M20 grade concrete and Fe 415 grade steel. Draw the reinforcement details.	15