

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination November 2018
B. Tech in Civil Engineering, Semester V

Roll No.....

CE: 507 Design of RCC and Steel Structures

Time: 3 hours

Max. Marks: 80

Instructions to students:

1. Do not write anything other than your roll number on question paper.
 2. Assume suitable data wherever required and mention it clearly.
 3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
 4. Use of IS-456, IS-800 & Steel Table permitted in exam.
-

- Q.1 Objective type multiple choice questions (5 questions @ 2 mark) 10
- i. Minimum no. of Reinforcement bars provided in circular column are (a)4, (b) 5,(c) 6 (d) 8
 - ii. Two way slab is provided when L_y/L_x is (a) <2 , (b) <3 , (c) >2 , (d) >3
 - iii. Minimum percentage of mild steel reinforcement given in slab is (a) 0.12%, (b) 0.15%, (c) 0.18%, (d) 0.20%
 - iv. Cantilever Retaining wall overturning minimum factor of safety should be (a)1, (b) 1.5, (c) 2, (d) 2.5
 - v. Two members connected by overlapping joint are known as (a) butt, (b) Single cover butt, (c) Double cover butt, (d) Lap
- Q.2 Short answer type questions (4 questions @ 5 marks) 20
- i Discuss the type of failures in Steel bolted joints.
 - ii Explain the stability check in RCC retaining walls.
 - iii Explain the design steps for the RCC column.
 - iv Enumerate the design steps for flanged beams.
- Q.3A Design a footing for a column 450mm x 450mm carrying a load of 1500 KN, the SBC of soil is 100KN/sq.m. Use M20 Concrete & Fe 415 steel 15
- OR
- Q.3B Two plates 10mm x 60mm are connected in a lap joint with 5 no. M16 bolts of grade 4.6 & 410 plates. Calculate the design shear strength of bolt. 15
- Q.4A Calculate the design bearing strength of bolt for the data as given in Q.3B. 15
- Q.5A Discuss the steps for calculation of design strength of tension members. 20
- OR
- Q.5B Design a RCC slab for a room size of 3m x 7m carrying a load of 2KN/m. Use M30 Concrete & Fe 415 steel. 20