



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agri. Engg) 2017 Admission
IV Semester Final Examination - June 2019

Iden.2205

Design of Structures (1+1)

Marks: 50
Time: 2 hours
(10x1=10)

I Fill in the blanks.

- 1 Earthquake load shall be computed in accordance with IS : _____
- 2 In over reinforced beam _____ material will fail first.
- 3 In design of tension permissible stress in axial tension is equal to _____
- 4 Recommended value of effective length for compression member which is effectively held in position at both the ends but not restrained against rotation is equal to _____
- 5 In working state method factor of safety for concrete is _____

Define

- 6 Structural design
- 7 IS Code
- 8 Foundation
- 9 Tension member
- 10 Retaining wall

II Write short notes on ANY FIVE

(5x2=10)

- 1 Structural components of the building .
- 2 State situations where doubly reinforced sections are used.
- 3 Assumptions in elastic theory.
- 4 Functions of transverse steel in column.
- 5 ISNT and ISMB.
- 6 Disadvantages of welded connections.
- 7 Steps in design of tension member.

III Answer any FIVE of the following.

(5x4=20)

- 1 Types of loads acting on the structure.(any four)
- 2 Calculate design constants for material concrete grade M-15 and Fe-415 steel reinforcement, by considering the balance design.
- 3 Modes of failure of R.C. sections.
- 4 R.C. beam of rectangular section 250 mm wide and 500 mm effective depth is reinforced with 4 bars of 20 mm diameter in tension zone . Calculate the ultimate moment of resistance of the section The materials used are concrete grade M-15 and steel grade Fe-250.
- 5 Calculate strength of ISA 50X50X6 mm used as a compression member in roof truss 1.06 m long. It is connected by one rivet at each end.
- 6 Differentiate between tension member and compression member.
- 7 A R.C column 3.5m effective length is required to resist an axial ultimate load of 1750 kN. Using M-20 concrete and Fe-250 steel, suggest square section for column.

IV Answer any ONE of the following

(1x10=10)

- 1 Design of one way slab.
- 2 Explain different types of retaining walls and their structural aspects.
