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

1   **Fill in the blanks.**   **(10x1=10)**

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.

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