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KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2012 Admission
V[th] Semester Final Examination-January -2015

Cat. No: Cien.3105   Marks: 80.00
Title: Design of Structures (1+1)   Time: 3 hours

I   **Fill up the blanks**   (10 x 1=10)

1. The maximum deflection of the beam should not exceed _____ of the span

2. The perpendicular distance between two gauge lines is called as_____

3. A structural member ,which carries a load normal to the axis is called as_____

4. HFSG stands for_____

5. In riveted joints ,the maximum pitch should exceed _____ mm

6. Fillet welds are used to connect structural components meeting at angle between _____ and _____ degrees

7. The effective length (L) of compression member effectively held in position at both ends restrained against rotation at one end is _____

8. _____ is a process of joining metal parts in the molten state without application of any mechanical pressure

State True or False

9. Columns primarily resist compressive stress

10. The best orientation of poultry house is east to west

II Write short notes on any TEN questions   (10 x 3=30)

1. What are the factors that will govern the structural design

2. What is web crippling

3. State the assumptions of the analysis and design of doubly reinforced beams

4. What are the factors to be considered in selecting a site for a farm house

5. State the disadvantages of steel structures

6. State the use of steel tables

7. Write short note on strength of riveted joints

8. Write short note on design of RCC columns

9. Discuss briefly on the preparation of detailed estimate

10. Differentiate one way and two way slabs

11. List down the uses of BIS codes

12. Enlist four common steel structures and state their functions

III Write short notes on any SIX questions   (6 x 5=30)

1. What are the different types of riveted joints
2. Discuss in detail about the design aspects of silos
3. Determine the rivet value of 18 mm diameter power driven field rivet when it is used to connect two angles ISA 75 x 75 x 6 mm back to back on both sides of 10 mm thick gusset plate
4. Design a suitable section for a strut of 2.5 m in length and carrying 3000kg. Assume both ends pinned
5. Explain in detail about the four classification categories of steel sections as per IS :800-2007
6. Discuss in detail about the concepts of effective lengths in design of compression members
7. Calculate the strength of ISA 40 x 25 x 6 mm thick when used as a tension member with its longer leg connected by (i) 14 mm dia rivets and (ii) fillet weld
8. What is column base? Discuss about the types of column bases in detail

IV Write an essay on any ONE   (1 x 10=10)

1. Find the suitable pitch for double riveted double cover butt joint for plate 1.5 cm thick. Given that the pitch for inner row of rivets is half the pitch for the outer row. Takes f_t =1500 kg/cm^2, f_s=945 kg/cm^2 and f_b=2125 kg / cm^2

2. Discuss in detail about the four modes of failure of a compression member

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