

Unit IV

No. of Printed Pages : 04

Roll No.

7. Describe the advantages and disadvantages of bricks as a building materials. Draw neat sketch of two successive courses of an English bond at the corner of a one and a half bricks thick wall. **4+3+3**
8. Describe the design procedure of a masonry column. Also describe the factors governing strength of a masonry column. **5+5**

B-4002

B. Arch. EXAMINATION, May 2017

(Second Semester)

(B. Scheme) (Main & Re-appear)

(Arch.)

AR-106-B

STRUCTURAL DESIGN-II

Time : 3 Hours]

[Maximum Marks : 50

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Assume any missing data suitably.

M-B-4002

4

450

(3-49/1) M-B-4002

P.T.O.

Unit I

1. Define the following and explain with neat sketch : **10**
 - (a) Pure bending
 - (b) Section modulus
 - (c) Moment of resistance.
2. (a) Draw stress-strain curve of a ductile and a brittle material. Describe the difference between the two. **4**
(b) Find the ratio of section modulus of a circular cross-section with that of a square cross-section of the same area. Comment on their comparative strength. **6**

Unit II

3. Describe briefly the structural properties of timber. What are the major defects of timber and how they affect its structural strength ? **4+6**

4. Briefly describe, how timber is classified ? Describe the advantages of Bamboo as a structural material. **5+5**

Unit III

5. Design a timber beam of sal of span 2.66 m for the roof of a room. The roof covering consists of timber planks with earth and brick tiles over them, so that dead load of roofing is 2.5 kN/m^2 . The live load on the roof is 1.5 kN/m^2 . Take allowable bending stress 16.8 N/mm^2 , shear stress 0.9 N/mm^2 and unit weight of sal 8.65 kN/m^3 and $E = 12700 \text{ N/mm}^2$. **10**
6. Find allowable axial load on a deodar column $200 \times 150 \text{ mm}$ is cross-section : **10**
 - (a) 3 m
 - (b) 4.5 m in lengthUse the following basic values : allowable compression along the grain = 7.8 N/mm^2 and $E = 9500 \text{ N/mm}^2$.