Total No. of Questions – [04]

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paper code: P119-112 (T1)

**OCTOBER 2019 / INSEM (T1)**

**F. Y. M. TECH. (CIVIL-STRUCTURES) (SEMESTER -I)**

**COURSE NAME: Critical Review of Design of Concrete Structures**

**COURSE CODE: CVPB11182**

**(PATTERN 2018:R1)**

Time: [1 Hour]

[Max. Marks: 20]

**(*) Instructions to candidates:**

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data where ever required**
5) **Allowed to use IS : 456 – 2000.**

Q.1)

(a) Draw stress-strain curves for concrete and HYSD steel. **[4 marks]**

(b)Explain in detail any six durability aspects of structural design of RC structures. **[6 marks]**

**OR**

Q.2)

(a)What are the performance requirement parameters for concrete structures? Elaborate with IS code provisions **[4 marks]**

(b)Explain the failure modes flexure, shear and torsion of RC beams and give IS code provision for the same to control the failure. **[6 marks]**

Q.3)

(a) A RC simply supported beam of section 300 x 500mm effective depth is reinforced with 3 bars of 16mm diameter. Calculate safe imposed load the beam can carry if span of the beam is 4m. Use M20 grade of concrete and Fe415 steel. **[6 marks]**

(b) A RC beam 400 x 600mm effective depth is reinforced with 4 bars of 25mm diameter. The beam is subjected to BM 150kNm. Find stresses developed in steel and concrete, if m=13.33. **[4 marks]**

**OR**

Q.4)

(a) Design the section of a RC beam to resist a BM of 185kNm. The section of the beam is restricted to 350 x 700mm. Assume 50mm effective cover. Use M20 grade of concrete and Fe250 steel. **[10 marks]**

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