

REGISTRATION NUMBER

SRINIX COLLEGE OF ENGINEERING

INTERNAL EXAMINATION-2018-19

Sub-PSC

Semester-6TH

Full Mark-50

ANSWER ALL QUESTIONS (PART-A)

- 1. Mention any four factors affecting the deflection of the prestressed concrete beam?
- 2. Sketches the different cable profiles used in S.S.B?
- 3. What are the advantages of prestressed concrete over R.C.C concrete?
- 4. What is meant by loss due to elastic shortening?
- 5. What is the minimum grade of concrete used for prestress?
- 6. Why a parabolic tendon preferred in prestressed concrete?
- 7. What is meant by primary moment, secondary moment?
- 8. What is concordant cable?
- 9. State flexural strength of prestressed concrete sections?
- 10. State concept of load balancing.

ANSWER ANY THREEE QUESTIONS (PART-B)

- 1. Why high tensile steel & concrete is needed for prestressed concrete construction?
- 2. A Prestressed pretensioned beam of 200mm wide and 300mm deep is used over an span of 10m is prestressed with a wires of area 300mm2 at an eccentricity of 60mm carrying a prestress of 1200 N/mm2 Find the percentage of loss of stress, Ec= 35 kN/mm2 Shrinkage of concrete = $300 \times 10-6$, creep coefficient = 1.6.
- 3. Describe the various systems of prestressing?
- 4. What are the essential devices used for pre-tensioning & Post Tensioning?

ANSWER ANY ONE QUESTION (PART-C)

- 1) A pretensioned T section has a flange width of 1200mm and 150mm thick. The width and depth of the rib are 300mm and 1500mm respectively. The high tension steel has an area of 4700mm2 and is located at an effective depth of 1600mmcharacteristic cube strength of the concrete and the tensile strength of steel are 40 and 1600Mpa respectively; calculate the flexural strength of the section.
- 2) A concrete beam having a rectangular cross section 150mm wide and 300mm deep is prestressed by a parabolic cable of eccentricity 75mm at the centre of the span towards the soffit, and an eccentricity of 25mm towards the top at the support section. The effective force in the cable is 350KN. The beam supports the concentrated load of 20KN at the centre of the span in addition to the self weight. If the modulus of elasticity of the concrete is 38KN/m2 and the span is 8m, Evaluate,
 - Short term deflection at the centre of the span under prestress, dead load and live i. load.

Branch-CIVIL

Time-2.00 Hrs

[2X10=20]

[6X3=18]

[12X1)