REGISTRATION NUMBER | | | | | | | | | | |

SRINIX COLLEGE OF ENGINEERING

1ST INTERNAL EXAMINATION-2017-18

Sub-DCS Semester-4**TH** Branch-**CIVIL**

Full Mark-**30** Time-1**.30Hrs**

ANSWER ALL QUESTIONS (PART-A) **[2X5]**

1. According to IS: 456-2000, the modulus of elasticity of concrete can be taken as _____?

2. Modulus of rupture of concrete is a measure of_____

3. Minimum grade of concrete to be used in reinforced concrete as per IS: 456-2000?

   (a) M20 (b) M15 (c) M10 (d) M25

4. If nominal shear stress τ_v exceeds the design shear strength of concrete τ_c, the nominal shear reinforcement as per IS 456:2000 shall be provided for carrying a shear stress equal to

   (a) τ_v (b) τ_c (c) $\tau_v - \tau_c$ (d) $\tau_v + \tau_c$

5. If the depth of actual neutral axis in a beam is more than the depth of critical neutral axis, then the beam is called

   (a) Balanced beam (b) Under-reinforced beam

   (c) Over-reinforced beam (d) None of the above

ANSWER ALL QUESTIONS (PART-B) **[2X5]**

1. Define over reinforced section?
2. What is the definition of neutral axis?
3. Define limit state method?
4. Define factor of safety?
5. Why side face reinforcement provided?

ANSWER ANY ONE QUESTION (PART-C) **[10X1]**

1. A singly reinforced rectangular beam of width 230mm and 460 mm effectively depth is reinforced with 3 numbers of 20 mm diameter bars. Find out the factored moment of resistance of the section. The materials are M20 grade concrete and HYSD reinforcement of grade Fe415.Also find out factored moment of resistance if it is reinforced with 5 numbers of 20 mm diameters bars?

2. A simply supported beam is 250mm*250mm has 2 numbers of 20 mm diameter bars and Fe415.If shear force at the center of support is 1100KN at working load. Determine the anchorage length? M20 grade concrete clear cover 25mm

3 .A rectangular beam section of size 230 mm width *400 mm overall depth is reinforced with 2 numbers 10 mm diameter bars at the top and 3 numbers 16 mm diameter bars at bottom being tension reinforcement. It is subjected to factored loads, shear force of 18KN a torsion moment of 1.2 KNM and a bending moment of 18KNM.Check for the torsion reinforcement .The materials are M20 grade concrete and HYSD reinforcement of grade Fe415?