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SRINIX COLLEGE OF ENGINEERING

1st INTERNAL EXAMINATION-2022

Subject-**DCS**
FULL MARKS-**60**

Semester-**5th**

Branch-**CIVIL**
Time-**2Hrs**

PART-A ANSWER ALL QUESTIONS

[2X10=20]

1. What is the characteristics strength of concrete? Establish the relationship between target mean strength and characteristics strength.
2. What is the relationship between characteristics strength with young's modulus of concrete and flexural strength of concrete?
3. Why FOS of concrete is taken more than that of steel?
4. What are the factors on which shear strength of concrete depend?
5. Why minimum shear reinforcement is provided?
6. Higher grade steels are not used as shear reinforcement. Justify.
7. Why inclined stirrups are usually provided in RCC section? In which case inclined stirrups are avoided?
8. A span of s/s beam is 18 m. What is the minimum depth required as per deflection criteria?
9. What are the functions of transverse reinforcements?
10. Differentiate between short and long column.

PART-B ANSWER FOUR QUESTIONS

[5X4=20]

1. What is the difference between limit state method and working stress method?
2. Calculate the moment of resistance for a singly reinforced rectangular section of size 250 mm × 350mm with effective cover of 40mm. grade of concrete is M20 and grade of steel is Fe415.

3. A RC beam has an effective depth of 500mm and a breadth of 350mm. it contains 4-25 mm bars. Calculate the shear reinforcement needed for a working shear force of 350 kN. The grade of concrete is M20 and grade of steel is Fe 250.
4. A continuous beam 25 cm by 40 cm carries 3-16 mm longitudinal bars beyond the point of inflection in the sagging moment. If the factored shear force at the point of inflection is 150 kN. Check if the beam is safe in bond. The grade of concrete is M20 and grade of steel is Fe 415.

PART-C ANSWER ALL QUESTIONS

[10X2=20]

1. Design the two way slab for room 5.5 m× 4.0 m clear in size if the superimposed load is 5 kN/m². Use M25 and Fe 415 grade steel. Edges are simply supported and corners are not held down.
2. Design a rectangular isolated footing having column size 300 mm × 500 mm subjected to a load of 1200 kN. Gross bearing capacity of soil 100 kN/m². Use limit state method. Grade of steel is M25 and Fe 415.