Roll No. | | | | | | | | | | | |

Total No. of Pages: 02
Total No. of Questions: 09

B.Tech. (CE) (Sem.-5th)

DESIGN OF CONCRETE STRUCTURE-I

Subject Code: CE-307
Paper ID: [A0615]

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATE:

1. ***Section-A is compulsory.***
2. ***Attempt any four questions from Section-B.***
3. ***Attempt any two questions from Section-C.***

SECTION–A

(10x2=20)

Q1. a) What is working Stress?

b) How segregation is avoided during storage.

c) What is the objective of compaction of concrete?

d) Why mechanical compaction is better than manual compaction.

e) Why Shrinking of concrete occurs.

f) List the various types of Steel Reinforcement.

g) What is non destructive testing of concrete?

h) Explain Creep of concrete.

i) Why bleeding of concrete occurs.

j) Explain the workability of concrete.

SECTION-B

(4x5=20)

Q2. Design a R.C. rectangular beam for a S.S span of 6.5 m carrying a S.I.L of 25 kN/m Inclusive of self-weight of the beam.

Q3. A rectangular R.C.C beam 300 mm wide and 450 mm deep (overall) is R/F with 4 bars of 20 mm dia. On tension side. The beam X-section is subjected to max. B.M. of 30 kN-m, S.F. of 30 kN and a torsional moment of 36 kN-m. Design the longitudinal and transverse R/F.

Q4. Explain Reinforcement splicing. Also explain curtailment of R/F.

Q5. Explain the importance of anchorage of reinforcing bars in flexure and shear.

Q6. Design the interior panel of a flat slab 5.6 X 6.6 m in size, for a super- imposed load of 7.75 kN/m2. Provide 2-way reinforcement. Use M20 concrete and Fe 415 steel.

SECTION-C

(2x10=20)

Q7. Draw stress-strain curve for steel and concrete, and explain the salient points.

Q8. Explain the stepwise procedure for the design of a staircase.

Q9. Explain why limit state design is considered more rational than Working stress design.

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