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**Question Paper Code: 95U18**

M.E. DEGREE EXAMINATION, MAY 2022

Elective

19PSE518 - DESIGN OF STEEL CONCRETE COMPOSITE STRUCTURES

(Regulation 2019)

(Use of BS 5950-1 : 2000, EN 1994 Euro code 4 and IS 11384 – 2019 are permitted in the  
End Semester Examinations)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Identify the failure modes of composite beams. CO1- U
2. Define modular ratio. CO3- A
3. List any two application of composite truss CO1- U
4. Draw the interaction curve for the uniaxial bending column CO1- U
5. List the functions of connectors. CO1- U
6. Discuss full shear connection. CO1- U
7. List the various forces acting in any composite connection CO5- U
8. Define box girder bridges CO5- U
9. Which type of composite column is suitable in seismic region? CO5- U
10. List out the seismic behavior of slab CO5- U

PART B - (5 x 16 = 80 Marks)

11. (a) Investigate the behavior of composite sections. CO2-App (16)  
Or  
(b) Explain the various serviceability issues of composite sections CO2-U (16)

12. (a) The composite column of size 400X400X400 mm under the design axial load of 1500 KN and bending moment about XX axis is of 200 kNm with steel section ISMB 250 is at the center. Steel reinforcement is 4 No's of 12 mm dia bars. Check the adequacy of the Section for uniaxial bending. Adopt M30 and Fe 415 steel CO2- App (16)
- Or
- (b) Design a tension member of a composite truss to transmit axial load of 160KN. Also design the end connectivity length of the member is 3.5m. CO3- Ana (16)
13. (a) Investigate about shear connectors and explain its types with neat sketches. CO4- Ana (16)
- Or
- (b) Examine the design of the shear connection at the interface of a composite RC CO4- Ana (16)
14. (a) Compare the various forms of composite box girder bridges with neat sketches. What are the advantages of box Girder Bridge? CO4- U (16)
- Or
- (b) Write the step-by –step procedure adopted in box girder bridges. CO4- U (16)
15. (a) Discuss a case study on steel concrete composite construction in buildings CO5- U (16)
- Or
- (b) Discuss a cost effective study of steel concrete composite construction over conventional construction in building sector CO5- U (16)