Total No. of Questions : 6]

SEAT No. :

P3971

[Total No. of Pages : 2

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M.E. (Civil Structures) (Semester - I)

DESIGN OF COMPOSITE CONSTRUCTION

(Elective - I (c)) (2008 Pattern)

Time : 4 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Solve any two questions from each section.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of calculator is allowed.***
6) ***Assume suitable data if necessary.***

SECTION - I

Q1) a) Compare provisions in India, BS & Euro code with reference to flexural behavior of composite used in construction. **[9]**

b) Explain structural elastic behavior of Composite Beam. **[8]**

c) Write design philosophy of composite construction. **[8]**

Q2) a) Explain types of sheeting used for composite construction; Explain its utility with suitable example, engineering applications, its material properties. **[10]**

b) Explain structural behavior of composite sheets for flexure, longitudinal shear, longitudinal slip, deflection, vertical shear. **[15]**

Q3) a) Explain and compare behavior of concrete filled column under axial load with different section. **[15]**

b) What is profilled decking system, state its advantage, what are the steps in design of profilled decking. **[10]**

P.T.O.

SECTION - II

Q4) a) Explain concept of composite truss, explain its advantages and disadvantages. **[8]**

b) Explain design of connectors used in composite truss. **[9]**

c) Draw structural arrangement in composite truss with details of connectors. **[8]**

Q5) a) How the fire protection is taken care of in composite construction? **[8]**

b) What is geometric imperfections, why they are induced, How are they are eliminated in composite construction. **[8]**

c) Sketch typical composite foundation showing important connection details. **[9]**

Q6) a) Sketch typical composite bridge deck slab and detail it with all the necessary data. **[8]**

b) Write design steps of composite beam with all necessary checks as per codal provisions. **[8]**

c) Design composite simply supported beam of span 6 meters to carry load 10 KN/m. Use composite constructions. Select appropriate constituents for composite construction. Assume their appropriate properties for design. Apply suitable code provisions and checks. **[9]**