**Karunya University**

**(Karunya Institute of Technology and Sciences)**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examinations – June 2016**

**Subject Title: DESIGN OF COMPOSITE STRUCTURES Time : 3 hours**

**Subject Code: 14CE3019 Maximum Marks: 100**

**Answer ALL questions (5 x 20 = 100 Marks)**

(Assume the relevant missing data)

(IS 800-2007, IS11384, Eurocode 4, BS 5950-3 and steel tables are permitted)

1. Explain the behaviour of composite material also write the benefits of using composite construction.

**(OR)**

2. Analyse the interaction between shear connector and solid slab, also explain the load bearing mechanism of the shear connector.

3. Design a simply supported composite beam with 10m span. The thickness of the slab is 125mm. The floor is to carry a imposed load of 3kN/m2, partition load of 1.5kN/m2 and floor finish load of 0.5kN/m2. Take Construction load as 0.75kN/m2. fck= 30N/mm2.

**(OR)**

4. Write the detailed design procedure of composite profiled deck slab as per the Euro code.

5. Analyse the plastic resistance of a concrete filled square composite column having size of 350x350mm. The height of the column is 3m and is pin ended. Assume M30 grade concrete. Assume the structural steel section as ISHB250@54.7kg/m

**(OR)**

6. Explain the behaviour and design procedure of steel concrete composite trusses.

7. Examine the key factors which affect the strength of shear connectors in composite structures.

**(OR)**

8. What are shear connectors? Explain in detail the properties of shear connectors with neat sketches.

9. **Compulsory:**

List the different types of composite beam column joints with neat sketches. Also discuss the behaviour of composite joints in buildings and bridges.