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B.Tech. Civil (Construction Management)

Term-End Examination

December, 2010

ET-521(C) : DESIGN DETAILING

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any five questions. Use of IS:456, IS:800, steel table and scientific calculator is permitted. Any missing data may be assumed suitably.*

1. (a)   Suggest a suitable size of an RC beam simply   7
            supported over a span of 10m. Draw a neat
            sketch showing a normal arrangement of
            reinforcing bars.

    (b)   Why concrete cover is required over the   7
            reinforcement? How does it vary for
            various member types such as beams,
            columns, slabs etc.?

2. Draw a neat sketch of a continuous beam, of three **14** spans each of 5m, subjected to uniformly distributed load of 3.5kN/m over its length. Assume Dead load to be 75% of the live load land in addition to live load. Draw the details of how the beam is to be reinforced.

3. Consider a single storey single bay rigid joint portal frame fixed at the base of the columns.

   (a) Draw qualitatively the BMD under dead **7** and live loads.

   (b) Draw qualitatively the BMD due to lateral **7** load which is relatively low since height of single storeyed structure is low.

4. (a) Indicate basic elements of formwork and **7** scaffolding. Draw neat sketches of the same.

   (b) Why and under what conditions steel is **7** economical for formwork? Draw an arrangement showing steel formwork for an RCC retaining wall 10m long and 250mm uniform thickness.

5. (a) Draw neat sketches showing different types **7** of failures in Riveted connections.

   (b) Explain advantages and disadvantages of **7** riveted and bolted connections.

6. (a) Draw a typical sectional elevation of a   7
        factory Building frame showing steel built up
        columns and truss.

   (b) What is meant by duplicate Tie systems.   7

7. (a) What factors affect the assessment of total   7
        electrical power requirements in a building ?

   (b) What provisions are made in a building for   7
        lift installation? What precautions are
        required to be taken for them ?

8. Write short notes/draw neat sketches on *any four*
   of the following :   4x3½=14

   (a) Duct accessories.

   (b) Refrigeration cycle.

   (c) Distribution Board.

   (d) Methods of steel welding.

   (e) Air conditioning.