**B.E. 6th Semester (Civil Engg.) Examination,**
**May–2012**

**DESIGN OF CONCRETE STRUCTURES–II**

**Paper–CE–302–E**

*Time allowed : 3 hours ]*          *[ Maximum marks : 100*

*Note :* (i)  *Attempt any five questions.*

(ii)  *Use of I.S. Code 456-2000 and 3370-1976 (Vol. I to IV) are permitted.*

(iii) *Draw neat sketch of your design.*

(iv) *Assume suitable data if missing or required.*

(v)  *Use Fe 415 grade of Steel.*

1.  (a)  What are the basic assumptions made in design of continuous beams ?

    (b)  Calculate the maximum Bending Moment for a semi circular beam supported on 3-equally spaced columns; the centres of column are on a curve of 10 m diameter. The super-imposed load applied is 15000 N/m². 8+12=20

2.  (a)  What are the methods of design of flat slabs ?

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section. The span of the beam is 7 m and it carries superimposed load of 10000 kg/m. Find the initial and final stresses at top and bottom of section. Assume losses of 15%. 20

6. Write short notes on any *four* :

   (a) Principles of prestressed concrete

   (b) Different methods of prestressing

   (c) End block analysis of stresses by Magnel Method

   (d) Method of analysis of a building frame

   (e) Assumptions made in yield line theory.

   $4 \times 5 = 20$

7. (a) Design sheeting and yokes for a column 300 mm × 300 mm size, 3000 mm in height ; upto the bottom of beam.

   (b) What do you understand by testing of beam and column sections. $14 + 6 = 20$

**2371**

8. (a) What do you understand by isotropically reinforced slab ?

or

Find the ultimate load for square slab continuous on all four edges.

(b) Design a rectangular slab 7.5 m by 5 m simply supported on all edges. Live load is 600 kg/m². Load factors are 1.5 and 2.2 for dead load and live load respectively. The ultimate moment in a longer direction is half of the shorter side. Take $\sigma_{sc} = 2600$ kg/cm² and $\sigma_{cu} = 280$ kg/cm².

6+14=20