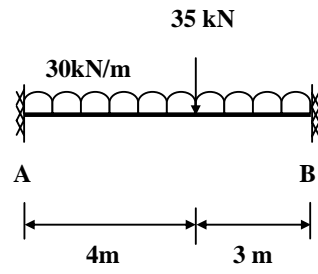


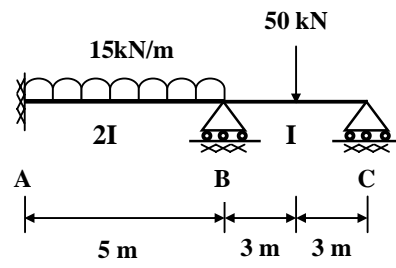
**GUJARAT TECHNOLOGICAL UNIVERSITY****BE SEM-III Examination May 2012****Subject code: 131304****Subject Name: Basics of Structural Engineering****Date: 09/05/2012****Time: 02.30 pm – 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Enlist various techniques of curing and explain any one in detail. **07**  
 (b) Define workability and state the factors affecting workability. **07**
- Q.2** (a) Explain compressive strength test of cement. **07**  
 (b) Explain Alkali aggregate reaction and state factors promoting and controlling it. **07**
- OR**
- (b) Distinguish between Rapid Hardening Portland Cement and Quick Setting Cement. **07**
- Q.3** (a) Derive the Euler's equation for finding out crippling load for an axially loaded column. **07**  
 (b) A hollow circular section having external dia. 280 mm has to carry a crippling load of 10000kN over a length of 6m both ends hinged. Find out the thickness of the section if  $E=200\text{Gpa}$ . **07**
- OR**
- Q.3** (a) Draw Shear force and bending moment diagram for the beam shown in **fig.1** **10**  
 (b) Define determinate and Indeterminate structure. **04**
- Q.4** (a) State seven different types of cement and their uses. **07**  
 (b) State Bogue's compound and its properties. **07**
- OR**
- Q.4** (a) Solve the beam shown in **fig.2** using Moment Distribution method and draw shear force and bending moment diagram. **10**  
 (b) State moment area theorems for obtaining slope and deflection in beams. **04**
- Q.5** (a) What is permeability? State and explain the factors affecting permeability. **07**  
 (b) Discuss particle size distribution curve and define coefficient of uniformity and coefficient of curvature. **07**
- OR**
- Q.5** (a) State the factors affecting field compaction of soil and state various field compaction methods. **07**  
 (b) What is Bearing capacity of soil? State and explain the factors affecting it. **07**



**FIGURE- 1 Q-3(a)**



**FIGURE- 2 Q-4(a)**

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