

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III Remedial Examination May 2011

Subject code: 131304 Subject Name: Basics of Structural Engineering

Date: 27-05-2011

Time: 10.30 am – 01.00 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) Draw Shear force and bending moment diagram for the beam shown in **fig.1** **10**
(b) Define determinate and Indeterminate structure. **04**
- Q.2** (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**
- OR**
- (b) Derive basic slope curvature relation for bending element. **04**
- 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. 300 mm has to carry a crippling load of 11250kN 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) Enlist various methods of curing and explain water curing in detail. **07**
(b) Explain Alkali aggregate reaction its causes and remedies. **07**
- 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) Define workability and state the factors affecting workability. **07**
(b) Explain the setting time tests of cement. **07**
- 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 are the methods of sub-surface investigation? Discuss any one in detail. **07**

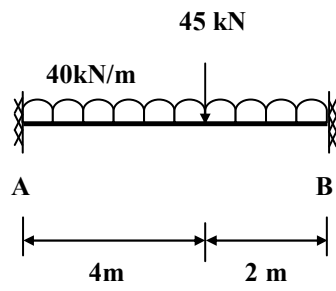


FIGURE- 1 Q-1(a)

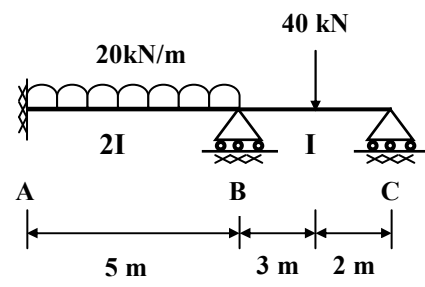


FIGURE- 2 Q-2(a)
