GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- III EXAMINATION - SUMMER 2015

| Subject Code: 131304 Date: 04/06/20 | | |) |
|-------------------------------------|---------------|--|-----------|
| | • | ect Name: Basics of Structural Engineering :02.30pm-05.00pm Total Marks: 70 |) |
| | Instructions: | | |
| - | 11501 010 | 1. Attempt all questions. | |
| | | Make suitable assumptions wherever necessary. Figures to the right indicate full marks. | |
| Q.1 | | Analyse the continuous beam as shown in figure (1) by moment distribution method and plot shear force and bending moment diagram both. | 14 |
| Q.2 | (a) | Using moment area method, find the slope at the free end of cantilever beam for the figure (2). $E = 1 \times 10^5 \text{ N/mm}^2$, $I = 1 \times 10^8 \text{ mm}^4$. | 07 |
| | (b) | Explain in details about the techniques to control the deflection in beam. | 07 |
| | (3.) | OR | |
| | (b) | Using moment area method, find the deflection at the free end of cantilever beam for the figure (2). $E = 1 \times 10^5 \text{ N/mm}^2$, $I = 1 \times 10^8 \text{ mm}^4$. | 07 |
| Q.3 | (a) | Explain the concept of kernel of section and middle third rule. | 07 |
| | (b) | Write in short "Alkali Aggregate Reaction". | 07 |
| | | OR | |
| Q.3 | (a) | Elaborate the concept of long column and short column. Also explain about the slenderness ratio. | 07 |
| | (b) | Write in short "Treatment of concrete for storing hot liquids". | 07 |
| Q.4 | (a) | Elaborate the geosyenthesis and its application. | 07 |
| | (b) | Explain the field test to determine the shear strength of soil. | 07 |
| | | OR | |
| Q.4 | (a) | Explain the term soil permeability and factors affecting it. | 07 |
| | (b) | Explain the laboratory test to determine the shear strength of soil. | 07 |
| Q.5 | (a) | Explain the soundness test on cement. | 07 |
| | (b) | Explain the term durability of concrete and factors affecting it. | 07 |
| | | OR | |
| Q.5 | (a) | Explain the compressive strength test on cement. | 07 |
| | (b) | Explain the shrinkage and creep of concrete and factors affecting it. | 07 |
| | | ***** | |

