53 (CE 503) STAN–II

2019

STRUCTURAL ANALYSIS–II

Paper : CE 503

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any five*** *questions.*

1. Analyse the three-span continuous beam shown in *Fig.* 1 by Slope-Deflection method and draw the bending moment and shear force diagrams. 20

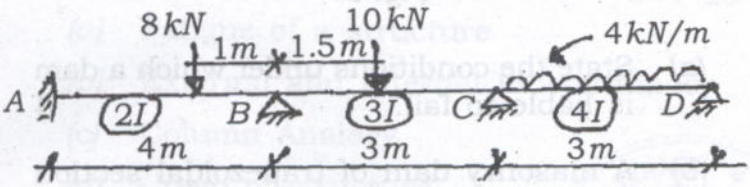

Fig. 1

Contd.

2. Determine the support reactions for the continuous beam shown in *Fig.* 2 using moment distribution method. 20

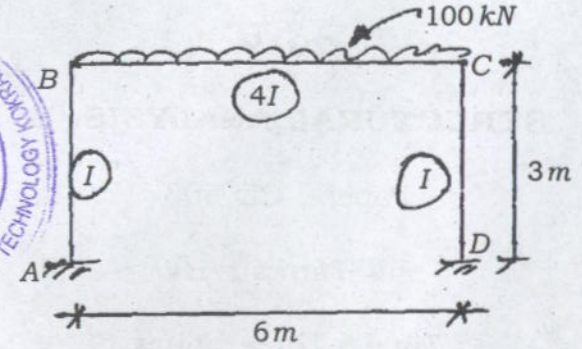

Fig. 2

3. Determine the support moments at *A*, *B*, *C* and *D* for the continuous beam shown in *Fig.* 3 using Kani's method. And draw the bending moment diagram. 20

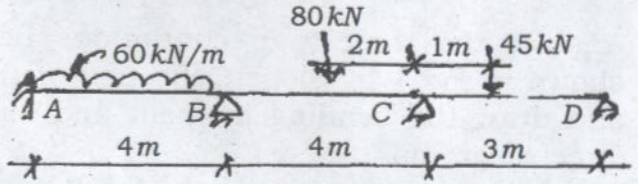

Fig. 3

4. *(a)* State the conditions under which a dam is liable to fail. 4

(b) A masonry dam of trapezoidal section is 12 *m* high with a top width of 2.0 *m*. The water face has a batter of 1 in 12. Find the minimum bottom width necessary so that tensile stresses are not induced on the base section. Masonry weighs 22500 N/m^3 and water weighs 9810 N/m^3. 16

5. *(a)* Define the following :

(i) Carry over factor and

(ii) Distribution factor. 4

(b) Analyse the beam shown in *Fig.* 4 using Column Analogy Method. And also draw the bending moment diagram. 16

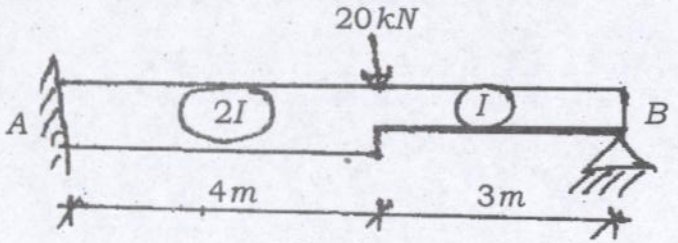

Fig. 4

6. Write short notes on the following : 5×4=20

(a) Fatigue of a structure

(b) External and Internal indeterminacy

(c) Column Analogy

(d) Creep of structure.
