PARUL UNIVERSITY
FACULTY OF ARCHITECTURE
B.Arch./ B.ID Winter 2017-18 Examination

Semester: 5   Date: 08/12/2017
Subject Code: 01101306   Time: 02:00pm to 04:00pm
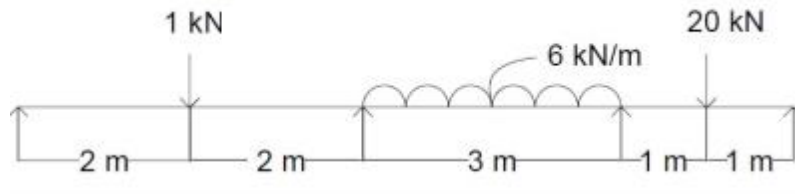Subject Name: Structural Design &Analysis -III   Total Marks: 50

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions whenever required.
4. Draw suitable sketches whenever required.

Q.1 Solve the continuous beam shown in the figure below. Determine the Movement at each joint   **(10)**
         Draw Bending Moment Diagram of beam.

Q.2 **Explain Briefly: (Attempt any 5)**   **(20)**
   a. Explain the difference between determinate and indeterminate structure.
   b. Explain the portal frames and three advantages of it in detail.
   c. Differentiate between:
       i.   Column & Struts.
       j.   Long column & short column.
   d. Explain buckling of a column and write down the "Euler Crippling Load" formula for different end conditions of the long column.
   e. Explain advantages and disadvantages of fixed beam.
   f. A circular column having internal diameter of 60mm and thickness of 10mm. calculate slenderness ratio. Let length of column is 3m.

Q.3 **Explain the term (Attempt any 5)**   **(10)**
   1. slope of the beam
   2. deflection of the beam
   3. stiffness of beam
   4. Minimum eccentricity
   5. distribution factor
   6. radius of gyration

Q.4 **(Attempt any two out of three)**   **(10)**
   1) A fixed beam of 8 m span carries a point load 60 kN, and 12 kN/m udl all over the span. Draw Shear Force Diagram & Bending Moment Diagram of beam.
   2) Define truss and types of truss , uses of truss in detail.
   3) Explain type of arches and impact on architectural field.