

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

**Semester: 5****Subject Code: 01101306****Subject Name: Structural Design & Analysis-III****Date: 18/05/2018****Time: 2.00 pm to 4.00 pm****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** A two span continuous beam ABC is simply supported on supports at A, B, and C such that span AB = 5 m and span BC = 4 m. The span AB carries a central point load of 120 kN and span BC carries an U.D.L. of 25 kN/ m. Find out B.M. and S.F. and draw bending moment and shear force diagram for the beam. **(10)**

**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. Define truss and types of truss , uses of truss in detail.
- d. Explain assumption of Euler's theorem of 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)**

- a. Slope of the beam
- b. Deflection of the beam
- c. Stiffness of beam
- d. Carry over factor
- e. Distribution factor
- f. Radius of gyration

**Q.4 Describe Briefly: (Attempt any 2)** **(10)**

- a. A point load 8KN act exactly at center of on distance for 3m fixed beam, calculate BMD,SFD, POC by using moment area method.
- b. An UDL is 12 KN/m on 4m distance on a fixed beam calculate BMD,SFD,POC by using moment area method.
- c. Explain type of arches and impact on architectural field.