

PARUL UNIVERSITY
FACULTY OF ARCHITECTURE
B. Arch. / B. Arch (ID) Winter 2016 Examination

Semester: III

Date: 19/12/2016

Subject Code: 01101206

Time: 10.00 am to 12.00 pm

Subject Name: Structural Design & Analysis - I

Total Marks: 50

Instructions:

1. Each section carries 25marks.
2. **Q1** and **Q2.a** are compulsory questions of each section.
3. **Q2.b** has sub optional questions.
4. Only one question has to be attempted between **Q3** and **Q4** in each section
5. Figures to the right indicate full marks.
6. Write separate sections on separate answer sheets.

SECTION: 1

- Q:1** Define following: (any five) **(10)**
 [a] Equilibrium of body
 [b] Point of symmetry
 [c] Space diagram
 [d] Center of gravity
 [e] Live load
 [f] Couple
- Q:2 (a)** Give explanation on role of structure in the field of architecture. **(5)**
- Q:2 (b)** Give difference: Load bearing structure and Frame bearing structure. **(5)**

OR

- Q:2 (b)** Define with the expression parallel axis theorem and perpendicular axis theorem. **(5)**
- Q:3** State & Derive the law of parallelogram. **(5)**
- Q:4** Explain in detail various type of supports beams. **(5)**

SECTION: 2

- Q:1** State difference between following: (any two) **(10)**
 1. Axis of symmetry and point of symmetry.
 2. Uniformly Distributed Load and Uniformly Varying Load.
 3. Dead load and Live load.
 4. Coplanar forces and Non-Coplanar forces.
- Q:2 (a)** Define Moment of Inertia and Radius of Gyration. **(5)**
- Q:2 (b)** An ISA section, 150 x150 x10 if thickness of web and flanges are 10 mm uniform, **(5)**
 determines its Centre of gravity (\bar{x} , \bar{y}) about both the centroid axis.

OR

- Q:2 (b)** List and explain the major component of member of R.C.C. building. **(5)**
- Q:3** Explain Deep and Shallow foundation with neat sketches. **(5)**
- Q:4** Explain in detail with sketches system of forces. **(5)**