**Rajasthan Institute of Engineering & Technology, Jaipur**

**II Mid Term examination**

**Session: 2017-18 Set-A**

**VI Semester CIVIL Branch**

**Subject :-TOS II (6CE1A)**

Time: 2 hrs. M.M.:20

**Instruction for students:**

**1. No provision for supplementary answer book.**

**2. Attempt all questions. 3. All question carry equal marks.**

1.Explain flexibility & stiffness. What is flexibility matrix & stiffness matrix?

Or

1.Explain force & displacement method.

2.Explain following in detail.

a.Shear center

b. Unsymmetrical bending

Or

2. A beam of rectangular section 80mm wide & 120mm deep is subjected to a bending moment of 12kN-m. The trace of the plane of loading is inclined at 450 to Y-Y axis of the section. Locate the NA of the section and calculate the max. bending stress induced in the section.

3.Describe the expression for the principal centroidal MOI Iuu & Ivv knowing the MOI about any pair of centroidal rectangular axes i.e. Ixx , Iyy & Ixy.

Or

3.The three hinged stiffening girder of a suspension bridge of 100m span is subjected to two points loads of 10kN each spaced at 20m, 40m respectively from the left hand hinged. Determine the B.M. & S.F. in the girder at 30m from left end.

4.A cable is used to support five equal & equidistant loads over a span of 30m. Find the length of the cable required & its cross sectional area if the safe tensile stress is 140 N/mm2.The central dip of the cable is 2.5m & loads are 5kN each.

Or

4. Draw the BMD & ‘ILD for horizontal reaction H’ for a three hinged stiffening girder.