B. TECH.
THEORY EXAMINATION (SEM–VI) 2016-17
MATRIX ANALYSIS OF STRUCTRES

Time : 3 Hours   *Max. Marks : 100*

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION-A

1   **Explain the following :**   **(10×2=20)**
   a)   Relation in flexibility and stiffness
   b)   Flexibility matrix
   c)   Stiffness matrix
   d)   Degree of freedom
   e)   Yielding of supports
   f)   Displacement method
   g)   Matrix inversion
   h)   Translational stiffness
   i)   Kinematic indeterminacy
   j)   Structural stability

SECTION-B

2   **Attempt any five of the following :**   **(10×5=50)**
   a)   Find indeterminacy of 3 span continuous beam fixed at both ends and its suitable method of analysis
   b)   A one span beam 4m fixed at ends find its stiffness matrix.
   c)   Discuss indeterminacy static and kinematic for pin jointed frames
   d)   Discuss Transfer matrix method of analyzing framed structure.
   e)   Discuss Generalized computer oriented treatment of stiffness method
   f)   Discuss substructure technique for solving very large structures.
   g)   How you will form stiffness matrix for a beam of one span ends pinned
   h)   Discuss force method.

SECTION-C

Attempt any two of the following :   **(15×2=30)**
3.   A rigid jointed building frame has ten story .it has 5 bays in one direction and 8 bays in other. Determine the degrees of static and kinematic indeterminacy for bases fixed and hinged.
4.   Solve 2 span beam 4m each fixed at ends by any suitable method subjected to udl of 30 kN/m on full span. Take EI constant.
5.   How you will solve settlement of intermediate support in 2 span beam fixed at ends.