

Roll No

MVSE-301(A)
M.E./M.Tech., III Semester

Examination, June 2016

Advance FEM and Programming (Elective-I)

Time : Three Hours

Maximum Marks : 70

- Note :* i) Attempt any five questions.
ii) All questions carry equal marks.
iii) Assume suitable data, if necessary.

1. Discuss the use of Hermitian Interpolation function. Derive shape function for a 6-noded quadrilateral element.
2. Discuss Iso-parametric formulation for plate and shell elements.
3. Solve a fixed-fixed beam problem for free vibration using finite element method by discretizing the beam into three elements.
4. Discuss in detail buckling analysis of struts using FEM with a suitable example.
5. Discuss structural modelling by FEM for cooling towers.
6. Discuss in detail computational aspects and interpretation of results of finite element analysis of structures.

7. Determine the approximate deflection of a simply supported beam under a UDL using Rayleigh-Ritz, Galerkin, finite difference and finite element method.
8. Write short note on any two of the following:
 - a) Hybrid elements
 - b) Geometric matrix
 - c) Structural modelling by FEM for shear walls
