MMPD 105

M.E./M.Tech., I Semester

Examination, December 2014

ComputerAided Engineering and Optimization

Time : Three Hours

Maximum Marks : 70

Note: Solve any five questions, all questions carry equal marks.

1. a) Enlist the applications of finite element analysis? How Bandy conditions are chosen?

   b) Compare merits and demerits of analytical, numerical and experimental of solving engineering problems?

2. Explain concurrent collaborative design cycle? How computers are used as enablers of concurrent design?

3. How dynamic, Buckling, thermal, fatigue, crash NVH and CFD is used for solving the problems in CAE?

4. Discuss Rayleigh-Ritz and Galerkin FEM method with suitable examples? How meshing is done?

5. Compare tria and quad elements? Where two dimentions meshing is done? Discuss effect of mesh density and biasing in critical design.

6. a) What are floating and fixed trias? Explain with suitable examples?

b) How simulation for weld, bolt, bearing and shrink fit is done?

7. a) Enlist DFM (Design for Manufacturing) aspects in product development?

b) Discuss use of morphing techniques in finite element analysis.

8. Write short notes on followings:

a) Brick meshing and quality checks.

b) Linear optimization.

c) Classical design for infinite life.

d) Climatic conditions and design abuses.