

Code No: J1501/R16

M. Tech. II Semester Regular Examinations, May-2017

OPTIMIZATION AND RELIABILITY

(Common to Machine Design(15), Mechanical Engg. Design (14), CAD/CAM (04)
Advanced Manufacturing Systems (17), Computer Aided Design & Manufacturing
(09), Computer Aided Analysis & Design (16)

Time: 3 Hours

Max. Marks: 60

Answer any FIVE Questions
All Questions Carry Equal Marks

1. Minimize $3x_1^2 + 4x_2^2 + 5x_3^2$ such that $x_1 + x_2 + x_3 = 10$ using Langrange multiplier method.
2.
 - a What is the reason for possible divergence of Newton's method?
 - b What are the types of classical optimization techniques?
3. How do you perform
 - a. crossover and
 - b. Mutation in GA? Explain with examples.
4. Write the typical optimization model for a machining problem. Discuss the objective functions and the constraints involved.
5.
 - a Explain Pareto's analysis.
 - b What is Non-dominated sorted GA? Explain.
6. Explain the optimization model of a weight of a cantilever beam
7.
 - a Write the differences between GA and GP.
 - b Explain Nelder Mead's Simplex method
8.
 - a Discuss the procedural steps involved in Non-dominated sorted GA.
 - b What are the objectives of GA,
