R09

Code No: D3302

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
QUALITY ENGINEERING IN MANUFACTURING
(ADVANCED MANUFACTURING SYSTEMS)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1. Explain the parameters considered for quality engineering in design of production processes. [12]

2. What are the economic consequences of narrow tolerance limits? Find the required tolerances for manufacturer and supplier with the following data:
   Nominal value of quality characteristic (y) = 100 Kg
   Tolerance of y = +/- 15Kg
   Cost to repair a nonfunctional unit by customer = Rs 400
   Cost to repair a nonfunctional unit by manufacturer = Rs. 150
   Cost to repair a nonfunctional unit by supplier = Rs 50. [12]

3. What is robust design? Consider that there are three 2-level noise factors in cake baking processes: Oven type (N1); Humidity (N2) and Room temperature (N3), determine the optimum condition by selecting the controllable factor levels such that variations due to uncontrollable factors are minimized? [12]

4. Explain the parameter design and tolerance design strategies. [12]

5. Elucidate No-way, One-way and Two-way ANOVA. [12]

6. What is orthogonality? How would you select the required orthogonal array for an experiment? [12]

7. What is the concept of Six Sigma? Explain Y- X diagram construction? [12]

8. What are the different techniques adopted in analyzing problems identified by quality circles? [12]

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