

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]
