

**BACHELOR OF TECHNOLOGY IN
MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)
B.Tech. (AEROSPACE ENGINEERING)**

Term-End Examination

December, 2010

BME-007 : QUALITY ENGINEERING

Time : 3 hours

Maximum Marks : 70

Note : Use of scientific calculator is permitted. Answer any seven questions. All questions carry equal marks.

1. Differentiate between Inspection and Quality control ? How do they differ from quality assurance and quality audit ? 10
2. Briefly discuss any five points of Deming's Quality Management ? 10
3. What do you mean by the zero defect ? Give step by step procedure to implement zero defect programme (ZD). 10

4. Complete the reliability of the system as shown in figure 1. 10
in figure 1.

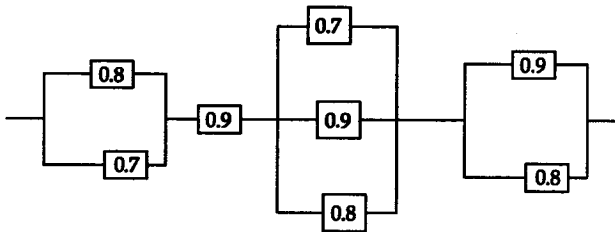


figure - 1

5. A Manufacturing plant produces light bulbs. The bulbs arrive at the end of the line and are then automatically packed into boxes that hold twenty bulbs. It is the policy of the plant to set every sixth box aside for inspection and non conforming unit identification. Data are collected on a work sheet and shown as follows. 10
No. of samples - 20, size of each sample - 20, the quality non-conforming unit identification in 20 samples are 2,0,4,0,0,0,1,2,3,0,0,1,0,0,0,2,0,1,1, and 0. Draw a suitable chart and determine the control limits.
6. What is Bench Marking ? Brief out the steps to be followed in Bench Marking process ? 10
7. The total number of failures is 110. The total number of maintenance hours used to correct the 110 failure is 735. Calculate maintainability for 1,3, and 12 hrs. 10

8. By means of extensive testing a manufacturing unit determine that its super sucker vacuum cleaner models have an expected life that is exponential with a mean of 4 years. Find the profit of these cleaners which will have life that stands : 10
- (i) After initial 4 years of services.
 - (ii) Before 4 years of service is completed.
 - (iii) Not before six years of service.
9. Equipment is required to meet an inherent availability of $A_i = 0.982$ and mean time between failure (MTBF) = 120 hr. what is permissible mean time to repair (MTTR) ? 10
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