Code No. 6366

FACULTY OF ENGINEERING

B.E. 4/4 (AE) II-Semester Examination, April / May 2014

Subject : Quality Control and Reliability Engineering

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions of Part - A and answer any five questions from Part-B.

PART – A (25 Marks)

1 Define Quality
2 List the causes of variation
3 What are the benefits of Quality Control?
4 Explain '$\bar{X}$' and 'R' chart
5 Explain process capability index.
6 When do you feel a process is in control.
7 Explain producers risk and consumers risk.
8 Define mean time to failure (MTTF) and mean time between failure (MTBF).
9 Explain product durability curve.
10 Explain operating characteristic curve for sampling plan based on reliability test.

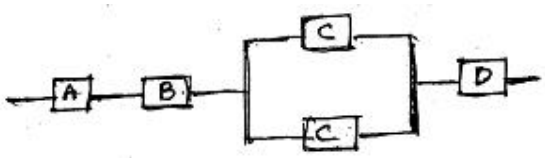
PART – B (50 Marks)

11 (a) Explain types of control charts. (4)
(b) Ten castings were inspected inorder to locate defects in them. (6)
Every casting was found to contain certain number of defects as given below. It is required to plot a C-chart and draw the conclusions.

Casting No	1	2	3	4	5	6	7	8	9	10
No. of defects found	2	4	1	5	5	6	3	4	0	7

12 (a) Explain single sampling plan. Explain its advantages and disadvantages. (4)
(b) A company has decided to use a single sampling with n = 25, and c=2, to evaluate the incoming Shipments. Suppose that AQL=0.01 and LTPD = 0.06, compute the producer's risk and consumer's risk by construction of OC-Curve. (6)

13 (a) Explain Reliability. (3)
(b) Find the reliability of the components, if A, B, C, D are 0.95, 0.98, 0.9 and 0.99 respectively. (7)



14 Explain in detail various 'Reliability Improvement techniques'. (10)
15 Explain in detail various Quality costs. (10)
16 Explain information flow during product analysis. (10)
17 Write short notes on the following:
(a) Derating (b) Sampling plans (c) Product life cycle (4 + 3 + 3)

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