

2004 S8PM QUALITY ENGINEERING & MANAGEMENT Test II

Time: 60 minutes

Marks: 8X5=40

Answer any eight questions

1. How does Juran differentiate between sporadic and chronic quality problems?
2. Explain the five ways to improve a process.
3. List the various possible input data for identifying opportunities for improvement.
4. Explain the numerical goal of "Six Sigma".
5. Compare the three types of sourcing possible for purchase of goods and services by an organisation.
6. Prepare a neat Cause and Effect diagram for the "late departure" of a train at a railway station. Identify at least ten causes.

7. The daily production and scrap data from a company making rubber footwear is as follows:

Day No	1	2	3	4	5	6	7	8	9	10
Qty produced	984	993	962	957	996	1058	1028	1006	1007	979
Qty rejected	60	34	45	51	73	46	48	51	42	46

Determine the control limits for a p chart. Neglect the small number of subgroups. Also disregard any run patterns.

8. Sketch and explain the different patterns that may be obtained in a Scatter diagram.
9. For an average chart of a shaft diameter with subgroup size 5, the control limits were 100.06 and 100.02mm. The shaft is made from raw material supplied by three different business groups. The next seven consecutive subgroup averages were obtained as 100.024, 100.029, 100.033, 100.038, 100.042, 100.047, and 100.051mm. What can you say about the process? Why?
10. An Average Range chart with subgroup size 4 is maintained for the tensile strength of a yarn in MPa. The yarn is spun in a machine imported from Switzerland, and it is well maintained. The average chart has control limits 75.2 and 78.8MPa based on past data, and the points continue to be in control. The specification for the yarn calls for a minimum tensile strength of 75MPa. Comment on the process capability.