

TE MTRX / SEM-VI / CBSGS

Q.P. Code: 27073

Time: 3 Hours

Marks: 80

Note:

1. Question No. 1 is compulsory.
2. Attempt any three from the remaining questions.
3. Assume suitable data if required.
4. Figures to the right indicate full marks.

- Q 1. Attempt any four from the following 20
- a. Define the term quality. And also explain the concept of quality.
 - b. Write a short note on roughness & waviness.
 - c. Difference between precision & accuracy
 - d. Explain the term random sampling technique.
 - e. What do you mean by p - charts & np - charts?
- Q 2. a. Derive an expression for three wire method used in screw thread measurement. 10
- b. Explain briefly OC curve with suitable curve. Also explain the following terms. 10
- i) Producer's risk
 - ii) Consumer's risk
- Q 3. a. Explain various modern SQC tools. 10
- b. Explain briefly the types of gauges with neat sketches. 10
- Q 4. a. Explain the following terms with respect to surface roughness parameter with neat diagrams. 10
- i) Ra ii) Ry iii) Rz iv) RMS
- b. Explain briefly 3-D co-ordinate measuring machine with suitable diagram. 10
- Q 5. a. Explain principle, working & construction of optical comparator with neat Diagram. And also write advantages & disadvantages. 10

- b. The following data on the number of components were collected when the process was in control. 10

Calculate:

- i. The control limits for \bar{X} charts & R charts
- ii. A new sample obtained the following reading 570, 603, 623, 583. Is the process still in control?

Sample → Subgroup ↓	1	2	3	4
1	604	612	588	600
2	597	601	607	603
3	581	570	585	592
4	620	605	595	588
5	590	614	608	604

- Q 6. a) Explain briefly the quality control concept. 10
- b) Write a short note on Indian Standard IS919. 5
- c) Explain profile projector with neat sketch. 5

$$n = 6$$

$$D_4 = 2.004$$

$$D_3 = 0$$