[5925]-348

S.E. (Robotics & Automation)
METROLOGY AND QUALITY ASSURANCE
(2019 Pattern) (Semester - IV) (211511)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
2) *Figure to the right indicates full marks.*
3) *Neat Diagram must be drawn wherever necessary.*
4) *Assume Suitable data if necessary.*
5) *Use of Logarithmic Table, Slide rule is Electronic pocket calculator is allowed.*

Q1) a) Explain in detail primary & secondary texture. **[8]**

  b) Explain concept of RMS value for surface roughness. **[9]**

OR

Q2) a) With neat sketch explain Tomlinson surface tester. **[8]**

  b) Explain effective diameter measurement by three wire method. **[9]**

Q3) a) What is cost of quality? Explain its types. **[8]**

  b) Explain $\overline{X}$-Chart & P-Chart. **[9]**

OR

Q4) a) Explain Process Capability Index. **[8]**

  b) The following table gives the number of missing rivets noted in a newly fabricated bus, construct c-chart and comment on process. **[9]**

Bus number	1	2	3	4	5	6	7	8	9	10
No. of missing rivets (c)	14	13	26	20	9	25	15	11	14	13

P.T.O.

Q5) a) State Seven QC tools & explain any three with neat sketch. **[9]**

b) Write a short note on: **[9]**

   i) Quality Circle

   ii) Kaizen

   iii) Kanban

OR

Q6) a) Explain in detail TQM and its importance. **[9]**

b) Explain Juran's Trilogy with neat sketch. **[9]**

Q7) a) Explain ISO 9000 and its importance. **[9]**

b) Explain the Concept of Quality Management System (QMS). **[9]**

OR

Q8) a) What is Quality audit and explain three types of quality audit. **[9]**

b) Explain ISO 14000 & list its benefits in detail. **[9]**

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