

Total No. of Questions : 8]

SEAT No. :

**P1612**

[Total No. of Pages : 2

[6002]-242

**S.E. (Robotics & Automation)**  
**Metrology and Quality Assurance**  
**(2019 Pattern) (Semester-IV) (211511)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume Suitable data if necessary.
- 5) Use of Logarithmic Table, Slide rule is Electronic pocket calculator is allowed.

**Q1) a)** With neat sketch explain the working principle of tool maker's microscope. [8]

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

OR

**Q2) a)** Explain screw thread terminology. [8]

b) Explain the use of profile projector with neat sketch. [9]

**Q3) a)** Explain  $\bar{X}$ -Chart & R-Chart. [8]

b) Contrast between Acceptance Sampling Vs 100% Inspection. [9]

OR

**Q4) a)** Explain Operating Characteristic Curve (OC Curve). [8]

b) Following table gives the number of defects in a casting used for making crank case of diesel engine, construct c-chart and comment on it. [9]

Casting No.	1	2	3	4	5	6	7	8	9	10
No. of defects (c)	15	11	25	10	12	20	15	10	17	13

P.T.O.

- Q5)** a) Explain Juran's Trilogy with neat sketch. [9]  
b) Write a short note on: [9]  
i) Quality Circle  
ii) Six Sigma  
iii) TPM

OR

- Q6)** a) Explain in detail TQM and its importance. [9]  
b) Explain following QC tools. [9]  
i) Pareto Chart  
ii) Control Chart  
iii) Stratification

- Q7)** a) Explain the benefit if environment management system. [9]  
b) Explain ISO 9000 and its importance. [9]

OR

- Q8)** a) Explain the concept of Quality Management System (QMS). [9]  
b) Explain the concept of ISO 14000. [9]

