

Total No. of Questions : 8]

SEAT No. :

PB3706

[6261]-114

[Total No. of Pages :2

S.E. (Robotics & Automation Engg.)

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) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Assume suitable data if necessary.*
- 5) *Use of Logarithmic Table, Slide rule is Electronic pocket calculator is allowed.*

Q1) a) Define the following terms. [8]

- i) Roughness
- ii) Roughness Height
- iii) Roughness width
- iv) Waviness
- v) Waviness height
- vi) Waviness Width
- vii) Primary Texture
- viii) Secondary Texture

b) Explain concept of RMS and CLA value for surface roughness measurement. [9]

OR

Q2) a) Explain with neat sketch Tool Maker's Microscope. [8]

b) With neat sketch explain coordinate measuring machine. [9]

Q3) a) Differentiate between Random(Chance) Causes & Assignable(Special) Causes. [9]

b) Explain \bar{x} -Chart & P-Chart. [9]

OR

P.T.O.

- Q4) a)** The following table gives the number of defects in a casting used for making crank case of diesel engine, construct c-chart and comment on casting process. [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

- b) Draw OC curve and explain following terms. [9]
- Producer's Risk
 - Consumer's Risk
 - AQL
 - LTPD/RQL

- Q5) a)** Explain Deming's approach towards Quality. [8]
- b) List Seven QC tools & explain any three with neat sketch. [9]

OR

- Q6) a)** With neat sketch explain Juran's Trilogy. [8]
- b) Draw and explain house of quality. [9]

- Q7) a)** State & Explain prerequisites for implementing ISO 9000 quality standards. [9]
- b) Explain ISO 4000 & list its benefits in detail. [9]

OR

- Q8) a)** Explain in detail ISO 9000:2000 series standards. [9]
- b) What is Quality audit and explain three types of quality audit? [9]

