TE - Sem - VI (CBSGS) Mech — MQE 23/11/16

Metrology and Quality Engineering

Q. P. Code : 601002

(03 Hours)

[Total Marks 80]

N.B. : 1. Question No. 1 is compulsory.
2. Solve any three out of remaining questions.
3. Assume suitable data if required and menion it clearly.
4. Figures to the right indicate full marks.

1. (a) Define wavelength standard and state the significance of using it. 5

(b) Explain the structure of Quality circle. 5

(c) What do you mean by OC curves? Explain. 5

(d) What are the errors in the threads. 5

2. (a) What is comparator? Explain any one type of mechanical comparator. 10

(b) Briefly explain Taylor's principle of Gauge design. Why sometimes it is desirable to differ from Taylor's principle? 10

3. (a) Define Interferometry. Explain Laser Interferometer with neat sketch. 10

(b) Following data was obtained during a surface finish determination test:

Sampling length	0.85 mm
Vertical magnification	4800
Horizontle magnification	120
Areas above the datum Line	112,114,60,100 mm^2
Areas below datum line	88,99,110,75, mm^2

Find the CLA value of the surface. 10

4. (a) What is CMM? Explain the types of CMM with neat sketches. 10

(b) Explain the use of R chart and c chart in Quality circle. 10

[Turnover

5. (a) The table given below shows the number of defectives found in inspection of 10 lots of 100 itemseach.

Lot No.	1	2	3	4	5	6	7	8	9	10
No. of defectives	6	3	1	4	3	0	11	5	2	3

i. Determine the control limits for P chart and state whether the process is in control?
ii. If the point that goes outside the control limits is analysed and estimated, what will be the value of new control limits and revised fraction defectives? 10

b) Explain Parkinson Gear Tester with neat diagram. 10

6. Write short notes on:- 20

(a) Limit Gauges

(b) Roughness Symbols

(c) Cause and Effect diagram

(d) Categories of costs

122-2