TE sem-II(R) Nov-Dec-14

AUTO Sub:- M & QE Date: 24/11/14

QP Code :14867

(3 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 mention it **clearly**.

1. (a) Differentiate between precision and accuracy with suitable example. **5**
   (b) What are objectives of quality control ? **5**
   (c) What are limitations and advantages of pneumatic comparators ? **5**
   (d) Explain concept of Waviness and Roughness. **5**

2. (a) A hole and shaft assembly designed as H7S6,having nominal diameter 32 mm is being manufactured. The gauges for components inspection are proposed on the basis of following information (All values in microns) **10**

   Hole : T = 25 H = 4 Z = 3.5 Y = 3

   Shaft : $T_1 = 16$ $H_1 = 4$ $Z_1 = 3.5$ $Y_{1=3}$ F.D. = 43

   Show dispersion of tolerance on gauges.
   (b) Explain construction and working of Parkinson Gear tester in detail. **10**

3. (a) Explain the phenomenon of interference of light. Explain briefly how it can be applied in flatness measurement of surface. **10**
   (b) Define and classify various types of cost of quality with suitable examples. **10**

4. (a) With the help of graphical presentation, explain following parameters used in surface texture measurement :— **10**

   (i) R_a (ii) R_y (iii) R_z (iv) Sampling length **10**
   (b) "If all points on X bar chart and R-chart lies within UCL and LCL then all parts should be accepted". **10**

   Do you agree with above statement ? If yes why? If not why ?

5. (a) Explain two wire method used in screw thread measurement. **10**
   (b) Explain P and nP charts with their applications. **10**

6. (a) Pins are supplied in lots of 5000.As per the sampling inspection procedure agreed between the vendor and company, sample size 50 is taken. If maximum two pin are defective, the entire lot is accepted otherwise rejected **10**

   (i) What is the probability that a lot containing 3% defective is accepted ?
   (ii) If AQL = 2%, what is producers risk
   (iii) If LTPD = 5%,what is consumers risk ?
   (iv) Sketch OC curve.
   (b) Explain construction and working and applications of profile projector. **10**

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