

**Total Marks: 80****Duration: 3 Hours**

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
4. Figures to right indicate full marks

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|----|----|---|-----------|
| Q1 | A] | Explain different types of tolerance grades   | <b>5</b>  |
|    | B] | Write short note on-Planning for quality.   | <b>5</b>  |
|    | C] | Explain principle of interference.  | <b>5</b>  |
|    | D] | Explain importance of surface conditions.   | <b>5</b>  |
| Q2 | A] | Explain following:-<br>1) Plug gauges and ring gauges<br>2) Filler gauges   | <b>10</b> |
|    | B] | Explain following parameters with respect to surface roughness measurement:-<br>1) $R_a$ Value<br>2) $R_z$ Value<br>3) $R_y$ Value<br>4) Roughness and Waviness | <b>10</b> |
| Q3 | A] | Explain Construction and working of Pneumatic Comparators. State their advantages and limitations.  | <b>10</b> |
|    | B] | How will you set up policy and objectives of quality control? Explain concept of quality of design.   | <b>10</b> |
| Q4 | A] | Explain construction and working of Tool makers microscope with the help of suitable sketch.  | <b>10</b> |
|    | B] | Explain following:-<br>1) Scatter diagrams<br>2) Pareto Charts  | <b>10</b> |
| Q5 | A] | Explain construction and working of Profile Projector. State various applications of Profile projector  | <b>10</b> |
|    | B] | Explain following:-<br>1) $\bar{X}$ bar Charts<br>2) R Charts<br>3) P Charts<br>4) $N_p$ Charts   | <b>10</b> |
| Q6 | A] | Explain Principle, Construction and working of Parkinson's Gear tester  | <b>10</b> |
|    | B] | Sketch OC curve and explain various elements of it. Also explain double sampling plans  | <b>10</b> |