

T.E. Mech. VI CBSEGS  
Metrology and Q.E.

16.5.17  
Q.P. Code :09947

[Time: 3 Hours]

[Marks:80]

Please check whether you have got the right question paper.

**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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|--------|---|----|
| Q.1 A) | Explain concept of quality and quality control  | 5  |
| B)     | State and explain most primitive length standard used in measurements. State reasons why these standards were replaced by optical/length standards. | 5  |
| C)     | What do you mean by waviness and roughness?   | 5  |
| D)     | Explain concept of flatness.  | 5  |
| Q.2 A) | Explain different types of fits with suitable examples and sketches. Also explain various tolerance grades.   | 10 |
| B)     | Explain Construction and working of Pneumatic Comparators. State their advantages and limitations.  | 10 |
| Q.3 A) | Explain Tomlinson's surface roughness measuring instrument in detail.   | 10 |
| B)     | Explain different types of quality costs in detail  | 10 |
| Q.4 A) | Explain principle, construction, working of optical interferometer in details.  | 10 |
| B)     | Explain various modern SQC tools.   | 10 |
| Q.5 A) | Explain three wire method used in screw thread measurements.  | 10 |
| B)     | With example of your choice explain procedure to prepare P charts and np charts. What inferences you can draw from these charts?                    | 10 |
| Q.6 A) | Explain principle, construction and working of Tool maker's Microscope  | 10 |
| B)     | Sketch typical OC curve and Explain:-   | 10 |
|        | 1) Acceptable Quality level   |    |
|        | 2) Producers Risk   |    |
|        | 3) Consumers Risk   |    |
|        | 4) Lot Tolerance Percent Defective (LTPD)   |    |