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B.TECH. DEGREE EXAMINATION, MAY 2014

Sixth Semester

Branch : Mechanical Engineering/Automobile Engineering

METROLOGY AND INSTRUMENTATION (M,U)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 4 marks.

1. Briefly discuss the analysis of variance of measurement data .

2. What are comparators ?

3. Define wear allowance.

4. Write a note on gauges materials.

5. **What is the effect of surface finish an crack formation ?**

6. Compare the roughness values produced in shaping, grinding and honing.

7. How selection of tolerance depend on quality of a product ?

8. Write a note on errors possible in a CMM.

9. What are the different types of strain gauges ?

10. What do you mean by loading effect on instruments ?

(10 × 4 = 40 marks)

Part B

Answer all questions.
Each question carries 12 marks.

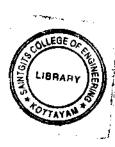11. Explain the control chart techniques for analysis of measurement data.

Or

12. Discuss the various aspects of systems of limits and fits.

13. Explain the construction and working of angular measurement instruments.

Or

14. Discuss the softwares generally used for circularity and flatness measurements.

Turn over

15. Explain the working of (i) SEM and (ii) TEM. Mention their applications.

Or

16. Discuss the various instruments for surface finish measurement.

17. Explain the features and principle of working of a non contact CMM.

Or

18. Explain the various measurements of gears and the techniques.

19. Discuss various static characteristics of a measuring instrument.

Or

20. Explain the construction and working of difference types of dynamometers.

($5 \times 12 = 60$ marks)