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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII • EXAMINATION - SUMMER • 2014

Subject Code: 170204 Date: 29-05-2014 **Subject Name: Automobile Mechanical Measurements** Time: 02:30 pm - 05:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) Name the various methods of measurements and explain any three of them 07 Q.1 with suitable examples. Differentiate between unilateral and bilateral tolerances. Explain the 07 **(b)** following fits with neat sketch: 1) Clearance Fit 2) Interference Fit 3) Transition Fit. **Q.2** Describe with sketch the construction and working of a Vernier Height 07 Gauge. Name the different types of the Comparators and explain Sigma 07 Comparators with neat sketch. OR **(b)** Explain briefly: 07 1) Telescopic Gauge 2) Dial indicators **Q.3** Describe the Parkinson's gear tester and state its limitations. 07 Explain with the help of neat sketches the principle and construction of an 07 auto-Collimator. OR Q.3 (a) Explain Screw Thread measurement using two wire and three wire **07** (b) Explain with neat diagram working principle and applications of Tomlinson 07 surface tester. Describe with sketch bimetal strip thermometer stating salient features. **07 Q.4** (a) What is a thermistor? Explain with neat sketch the construction and 07 **(b)** working of a thermistor. OR 0.4 Sketch and explain diaphragm gauges stating advantages and limitations. 07 Explain the constructional features and basic principles of McLead gauge 07 used for low pressure measurements. Compare and differentiate following terms: 07 Q.5i) Threshold and Resolution ii) Systematic error and Random error (b) List the different types of Mechanical and Electrical tachometer and explain 07 Eddy current tachometer. OR (a) Explain Peizo-electric and Seismic accelerometer. 07 0.5 Explain the working principle of Ionization gauge with advantages and disadvantages ********