Seat No.: ___ **GUJARAT TECHNOLOGICAL UNIVERSITY** M. E. - SEMESTER - III • EXAMINATION - WINTER- 2015 Subject code: 2735004 Date: 04/12/2015 Subject Name: METROLOGY AND COMPUTER AIDED INSPECTION Time: 2:30 Pm to 5:00 PM **Total Marks: 70** Instructions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Que-1 (a) Write short notes about accuracy and precision. **07** Write short notes about interchangeability and selective assembly. 07 1. Explain the different types of surface texture. Oue-2 (a) 04 2. Explain the terminology for surface roughness. 03 How to measure surface finish by using Tomlinson Surface meter? Explain with neat 07 sketch. OR Describe comparison methods of measuring surface texture giving their relative (b) 07 advantages. 1. How profilometer is useful for surface measurement. 04 Oue-3 2. Describe the methods used for measuring the radius of surface. 03 Write the working principle with schematic diagram and specification of any one (b) **07** Laser interferometer. OR 1. Explain the working of Michelson interferometer. How it has undergone Que-3 04 modification in stages? 2. Explain the working of AC laser interferometer. 03 (b) Write the characteristics of any three light source's used for interferometry. 07 Explain the working principle of Tool makers Microscope with neat sketch and brief **07** Que-4 how to use it for measuring measurements. Write the types of Coordinate Measuring Machine. Explain in brief about any one 07 (b) CMM with neat sketch. OR Draw and explain about block diagram of machine vision system function. Oue-4 **07** Define gray scale analysis. Write the advantages and limitations of computers in Metrology. (b) 07 Explain about Computer imaging system and image analysis. **07** Que-5 (a) Explain the concept involved in POKA - YOKE. 07 OR Explain Histogram model with neat sketch. 07 Que-5 (a) Write the four steps involved in Image scale processing Techniques. 07
