Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14ME2006** | **Duration :** | **3 hrs.** |
| **Sub. Name :** | **METROLOGY AND MEASUREMENT SYSTEMS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Describe the various types of errors in measurement. Explain their causes and remedies. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | What do you mean by calibration? Explain the standard procedure of calibrating a measuring instrument. What are the benefits obtained through calibration? | CO1 | 14 |
| b. | Write short notes on readability of measuring instruments. How can we improve readability of a measuring instrument? | CO1 | 6 |
|  |  |  |  |  |
| 3. | a. | With a neat sketch explain the construction and working of Bevel protractor. Discuss how least count is calculated for it. | CO1 | 12 |
|  | b. | With a neat sketch explain the construction and working of lever type dial indicator. | CO1 | 8 |
| (OR) | | | | |
| 4. |  | With a neat sketch explain the construction and working of a micrometer. Also explain the various types of micrometers. | CO1 | 20 |
|  |  |  |  |  |
| 5. | a. | Describe the construction and working of LVDT. List out the advantages and disadvantages of electrical comparators. | CO1 | 12 |
|  | b. | Describe the working principle and working of optical comparators. | CO1 | 8 |
| (OR) | | | | |
| 6. | a. | With a neat sketch, describe the construction and working of the Tomlinson Surface meter. | CO2 | 14 |
|  | b. | List out the advantages and disadvantages of pneumatic comparator. | CO2 | 6 |
|  |  |  |  |  |
| 7. |  | With relevant sketches, illustrate the measurement of straightness using straight edge, spirit level and autocollimator method. | CO1 | 20 |
| (OR) | | | | |
| 8. |  | Define effective diameter and derive an expression for finding effective diameter of screw thread using two wire methods. How to find the best wire size for the measurement of effective diameter? | CO1 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. |  | Discuss the types, construction and working of Coordinate Measuring Machine. State its advantages, disadvantages and applications in quality control. | CO2 | 20 |

ALL THE BEST