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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

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

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **11ME203/ME281/PE227** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **METROLOGY AND COMPUTER AIDED INSPECTION** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | **Marks** |
| **PART-A(10X1=10 MARKS)** | | | |
| 1. | The error in measurement is the difference between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_. | | (1) |
| 2. | \_\_\_\_\_\_\_\_\_\_\_\_\_ refers to the ease with which the readings of a measuring instrument can be read | | (1) |
| 3. | State two uses of comparators. | | (1) |
| 4. | \_\_\_\_\_\_\_\_ is a spirit level mounted on a rotary member. | | (1) |
| 5. | Name the various types of pitch errors found in screw. | | (1) |
| 6. | Name any two methods used to measure roundness. | | (1) |
| 7. | Define Screw thread | | (1) |
| 8. | Define: Lead angle | | (1) |
| 9. | Name the four common types of coordinate measuring machines. | | (1) |
| 10. | Name the common source of light used for interferometer | | (1) |
| **PART B(5 X 3= 15 MARKS)** | | | |
| 11. | State the disadvantage of material standard. | | (3) |
| 12. | Define least count of vernier instrument and explain how it is determined. | | (3) |
| 13. | Define straightness of a line in two planes. | | (3) |
| 14. | Define Addendum and dedendum of a gear. | | (3) |
| 15. | List the applications of CMM. | | (3) |
| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | Define Error in measurement. Outline how errors are classified? | | (15) |
| (OR) | | | |
| 17. | a. | What are the various care to be taken on instruments? | (10) |
| b. | Define calibration and readability. | (5) |
| 18. | State the principle of micrometer. Explain with a neat sketch briefly the construction and types of errors in micrometer screw gauge reading. | | (15) |
| (OR) | | | |
| 19. | Explain the construction and working principle of Autocollimator, with a neat sketch. | | (15) |
| 20. | a. | With a neat sketch explain the construction and working of Tomlinson surface meter. | (10) |
| b. | With a neat sketch explain the construction and working of Profilometer. | (5) |
| (OR) | | | |
| 21. | Describe the principle of operation of Tool maker’s microscope with a neat sketch in detail. List its advantages and limitations | | (15) |
| 22. | Explain the terminology of a Gear with a neat sketch. Explain any one method of Pitch measurement in gears. | | (15) |
| (OR) | | | |
| 23. | Explain the measurement of effective diameter of a screw thread using two wire method and derive an expression for the same. | | (15) |
| 24. | Explain the construction and working details of Coordinate Measuring Machines. | | (15) |
| (OR) | | | |
| 25. | Explain the construction and working principle of Michelson interferometer with neat diagram. | | (15) |

ALL THE BEST