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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

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

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14ME3016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED METROLOGY** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Describe how Ball Bar is used for testing the accuracy of machine tool with neat sketch. | CO3 | 10 |
| b. | Briefly explain the working of Michelson Interferometer with a neat sketch. | CO3 | 10 |
| (OR) | | | | |
| 2. | a. | Discuss the basic components of coordinate measuring machine. | CO1 | 15 |
| b. | State applications of Laser Micro Meter. | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | Explain the working principle of Tomlinson surface meter with a neat diagram. | CO3 | 15 |
|  | b. | Discuss the various elements of surface texture. | CO3 | 5 |
| (OR) | | | | |
| 4. | a. | What is machine vision system? Discuss in detail about the basic steps involved in machine vision system. | CO3 | 15 |
|  | b. | Define Wave Length Standards based on Krypton - 86 emission. | CO3 | 5 |
|  |  |  |  |  |
| 5. |  | Explain in detail the construction and working of Scanning Electron Microscope with a neat diagram. State its applications. | CO3 | 20 |
| (OR) | | | | |
| 6. |  | Discuss on Transmission Electron Microscope (TEM) with a neat sketch. Explain how its differ from Scanning Electron Microscope (SEM). | CO3 | 20 |
|  |  |  |  |  |
| 7. | a. | What do you understand by geometric tolerances? | CO2 | 5 |
|  | b. | Discuss unilateral and bilateral system of writing tolerances with suitable example and explain which system is preferred in interchangeable manufacturing and why? | CO2 | 15 |
| (OR) | | | | |
| 8. | a. | What do you mean by ‘calibration of measuring instruments’? What are the general guidelines for calibrating the instruments? | CO1 | 10 |
|  | b. | Describe various elements and its function of a generalized measurement system with block diagram and suitable example. | CO1 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the working principle of Tomlinson surface meter with a neat diagram. | CO3 | 15 |
|  | b. | Discuss the various elements of surface texture. | CO3 | 5 |

ALL THE BEST