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 – April/May– 2017**

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| **Code :** | **14ME3015** | **Duration :** | **3hrs** |
| **Sub. Name :** | **THEORY OF METAL CUTTING** | **Max. marks :** | **100** |

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

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. |  | Explain the different types of chip with neat sketch. | CO1 | 20 |
| (OR) | | | | |
| 2. |  | In orthogonal cutting, if the feed is 1.25mm/rev and chip thickness after cutting is 2mm. shear strength is 6000kg/cm2. Width of cut is 10mm with 10° rake angle, cutting speed and co-efficient of friction are 30m/min as well as 0.9. Determine (a) Chip thickness ratio (b) Shear angle (c) friction angle (d) shearing force. | CO1 | 20 |
| 3. |  | Draw and explain the nomenclature of single point cutting tool with neat sketch. | CO2 | 20 |
| (OR) | | | | |
| 4. |  | Discuss various types of equipment used for force measurement during metal cutting. | CO2 | 20 |
| 5. |  | Explain the various methods of measuring cutting temperature in metal cutting. | CO3 | 20 |
| (OR) | | | | |
| 6. |  | Classify the methods to apply the cutting fluid and also explain it with neat sketch. | CO3 | 20 |
| 7. |  | Discuss about different types of tool materials with its essential properties and features. | CO4 | 20 |
| (OR) | | | | |
| 8. | a. | Define. Tool Life. Explain it with Taylor’s Tool Life equation. | CO4 | 10 |
|  | b. | A tool life of 80 mins. is obtained at a speed of 30mpm and 8 minutes at 60mpm. Determine the (i) Tool life equation (ii) cutting speed for 4 mins. Tool life. | CO4 | 10 |
|  | | **Compulsory**: |  |  |
| 9. |  | Explain the term “Mechanisms of Tool wear” with suitable Sketches. | CO5 | 20 |

ALL THE BEST