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**

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| **Code :** | **14ME2046** | **Duration :** | **3hrs** |
| **Sub. Name :** | **METAL CUTTING THEORY AND PRACTICE** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Draw and Explain the Merchant’s circle with Forces acting on it. | CO1 | 20 |
| (OR) | | | | |
| 2. | a. | In an orthogonal turning operation cutting speed 80m/min, Cutting force 20kg, feed force 8 kg, Back rake angle 15º, Feed 0.2 mm/rev, Chip thickness 0.4mm. Determine the following i. Shear angle ii. work done in shear iii. Shear strain | CO1 | 10 |
|  | b. | Differentiate orthogonal and oblique cutting with neat sketch | CO1 | 10 |
|  |  |  |  |  |
| 3. |  | Draw and explain the nomenclature of a multi point cutting tool with neat sketch. | CO2 | 20 |
| (OR) | | | | |
| 4. |  | Why should we measure the cutting force during Machining? List out the reasons with required sketch. | CO2 | 20 |
|  |  |  |  |  |
| 5. |  | What are all the factors Influencing the cutting tool Temperature? Explain it with required Data. | CO3 | 20 |
| (OR) | | | | |
| 6. |  | List out and classify the cutting Fluids used in Machining. | CO3 | 20 |
|  |  |  |  |  |
| 7. |  | Explain the Terms i. Failure of Cutting Tools ii. Tool life | CO4 | 20 |
| (OR) | | | | |
| 8. | a. | In a certain tool test a single point cutting tool had a life of 10 minutes when operating at 240 metres/minute. At what speed should the tool have to be operated in order to have a tool life of 3 hrs. Assume n=0.2 | CO4 | 10 |
|  | b. | The tool life for a HSS tool is expressed by the relation VT1/7= C1 and for WC is expressed as VT1/5 = C2. If at a speed of 24metres per minute the tool life 128 minutes, compare the life of the two tools at a speed of 30m/min. | CO4 | 10 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. |  | Chatter. Explain the term with suitable sketch bringing out the effects. How do you control chatter? | CO5 | 20 |

ALL THE BEST