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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 :** | **09ME223** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Metal Cutting Theory and Practice** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | **Marks** |
| **PART-A(10X1=10 MARKS)** | | | |
| 1. | Define orthogonal cutting. | | (1) |
| 2. | Write any two factors affecting cutting force. | | (1) |
| 3. | Classify the cutting tool. | | (1) |
| 4. | The Angle between the dead center and the lip of the chisel edge \_\_\_\_\_\_\_\_ | | (1) |
| 5. | What are the recent methods of cooling? | | (1) |
| 6. | Name any two methods used to heat workpiece during hot machining. | | (1) |
| 7. | During metal cutting maximum temperature is developed at the cutting edge (True/False). | | (1) |
| 8. | Draw the tool life diagram with the variable velocity. | | (1) |
| 9. | Write the Taylor tool life equation. | | (1) |
| 10. | What is meant by grinding ratio? | | (1) |
| **PART B(5 X 3= 15 MARKS)** | | | |
| 11. | Draw and describe the system of forces during turning process? | | (3) |
| 12. | How do you differentiate between orthogonal cutting and oblique cutting? | | (3) |
| 13. | Write short notes on embedded thermocouple method. | | (3) |
| 14. | What are the tool failure criteria? | | (3) |
| 15. | Discuss about the characteristics ofself-excited vibration. | | (3) |
| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | Discuss the different types of chip formed in metal cutting with neat sketch. | (15) |
| (OR) | | | |
| 17. |  | Briefly explain about the Ernst and Merchant theory. | (15) |
| 18. |  | Explain the tool nomenclature of a single point cutting tool with neat sketch. | (15) |
| (OR) | | | |
| 19. |  | Discuss in detail about the tool nomenclature of drill bit. | (15) |
| 20. |  | What are the functions and the required properties of cutting fluids? Explain about the different types of cutting fluids and mention their merit and demerits. | (15) |
| (OR) | | | |
| 21. |  | Write in detail about the selection of cutting fluid for common engineering materials. | (15) |
| 22. |  | Explain the following cutting tool materials |  |
| a. | Carbon and medium alloy Steels. | (5) |
| b. | High Speed Steel (HSS). | (5) |
| c. | Cemented Carbides. | (5) |
| (OR) | | | |
| 23. |  | Explain about the effect of process parameter on tool life. | (15) |
| 24. |  | Explain the following. |  |
| a. | Classifications of Tool wear. | (7) |
| b. | Mechanism of tool wear. | (8) |
| (OR) | | | |
| 25. |  | Discuss the effect of process parameters on grinding. | (15) |

ALL THE BEST