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 – 2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **15ME3007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCED TOOL DESIGN** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | List the cutting tool materials employed for Hobs and Thread Rolls. | CO1 | **2** |
| b. | State the machining application that requires positive rake angle in tool. | CO1 | **3** |
|  | c. | Discuss the important characteristics of material that will be playing a major role in selection of tool material? | CO1 | **15** |
| **(OR)** | | | | |
| 2. | a. | Discuss how ceramic tools can increase productivity. | CO2 | **3** |
| b. | State the important requirements of a Gear cutting tool. | CO1 | **2** |
|  | c. | Explain the design steps involved and the factors to be considered while designing a multi-point cutting tool. | CO2 | **15** |
| 3. | a. | How a cutting is specified according to ISO systems? | CO3 | **2** |
|  | b. | State the need of fool proofing in jigs and fixture design. | CO2 | **3** |
|  | c. | Draw and explain the working of hydraulic and mechanical clamps. | CO1 | **15** |
| **(OR)** | | | | |
| 4. | a. | What are the liner bushes? State the manufacturing procedure of the liner bushes. | CO2 | **5** |
|  | b. | Sketch the locators used in jigs and fixturing work and enumerate their purpose   1. Conical locator 2. Diamond locator 3. Adjustable locator | CO3 | **15** |
| 5. | a. | State the application of spherical washers in fixturing work. | CO3 | **2** |
|  | b. | What is purpose of template Jigs? | CO2 | **3** |
|  | c. | Discuss the manufacturing and wear allowance provided in gauges with examples. | CO3 | **15** |
| **(OR)** | | | | |
| 6. | a. | What are the essential requirements for a clamping device? | CO1 | **3** |
|  | b. | How much clamping force can be used? | CO1 | **2** |
|  | c. | Discuss the various types of moulds for compression moulding. | CO4 | **15** |
| 7. | a | Explain any four types of fixtures with neat sketches with the applications on milling operation. | CO2 | **10** |
|  | b. | Explain with sketches any four types of bushings employed in Jigs and Fixture work. | CO4 | **10** |
| **(OR)** | | | | |
| 8. | a. | Discuss the steps involved in mould construction for injection moulding | CO4 | **10** |
|  | b. | Explain any four types of drill jigs with neat sketches with the application on drill machines. | CO4 | **10** |
|  | | **Compulsory:** |  |  |
| 9. | a. | Why locating points should be placed as far apart as possible? | CO2 | **2** |
|  | b. | How spring back effect is compensated? | CO4 | **3** |
|  | c. | Discuss the requirements of jigs and fixture design in high speed machining with CNC machines | CO5 | **15** |

ALL THE BEST