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**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14ME2025** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPUTER AIDED DESIGN AND MANUFACTURING** | **Max. marks :** | **100** |

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

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| --- | --- | --- | --- | --- |
| **Q. No** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Briefly discuss the history of CAD/CAM development | CO1 | 10 |
| b. | List out the CAD and CAM tools required to support the design and manufacturing process. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Sketch and distinguish between sequential and concurrent engineering. List the advantages of Concurrent engineering over sequential engineering. | CO1 | 10 |
| b. | List and explain all the important CAD standards used in computer graphics applications. | CO1 | 10 |
|  | | | | |
| 3. | a. | Sketch the product life cycle and and explain four stages using an example. | CO1 | 10 |
|  | b. | Explain the product desing process with a neat flow chart. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | A rectangle is defined in a two dimension system by its vertices (A=2,2) (B=6,2) and (C=6,6) and (D=2,6). Perform the following transformations on this triangle.   1. Translate the rectangle in space by 2 units in the X direction and 4 units in the Y direction. 2. Scale the original rectangle by a factor of 2 in the X direction and 3 in the Y direction. 3. Rotate the original rectangle by 45o about the origin. | CO1 | 10 |
|  | b. | With a neat flowchart depict the complete process for implementing the DDA algorithm. | CO1 | 10 |
|  | | | | |
| 5. | a. | Write the technique involved in Cohen Sutherland and Sutherland Hodgman Polygon Algorithm used in clipping the lines. | CO2 | 10 |
|  | b. | Explain the back-face technique for removing the hidden lines and list the advantages and disadvantages of the hidden line algorithms. | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | List out the methods of defining synthetic curves. | CO2 | 10 |
|  | b. | Discuss in detail the nomenclature of Bezier curves and cubic Bezier curves for various control points. | CO2 | 10 |
|  | | | | |
| 7. | a. | Discuss in detail about the constructive geometry and its applications in solid modelling. | CO2 | 10 |
|  | b. | Explain boundary representation technique with its validity, advantages and disadvantages. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Draw a neat flow chart and explain the steps involved in the development of a proven part program in NC machining. | CO3 | 10 |
|  | b. | Depict the concrete bedding used for the CNC machine and summarize the advantages of the concrete bed damping over steel structures. | CO3 | 10 |
| **Compulsory:** | | |  |  |
| 9. | a. | Explain the functions of *G00 and G02 and G03* with relevant sketches | CO3 | 10 |
|  | b. | Write the part programming for the figure shown below using cutter radius compensation.  cadn cbcs | CO3 | 10 |

ALL THE BEST