Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **14ME2025** | **Duration :** | **3hrs** |
| **Sub. Name :** | **COMPUTER AIDED DESIGN AND MANUFACTURING** | **Max. Marks :** | **100** |

**ANSWER ALL THE 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 outthe 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 out and explain the important CAD standards used in computer graphics  applications. | CO1 | 10 |
|  | | | | |
| 3. | a. | Sketch the product life cycle and explain the four stages using an example. | CO1 | 10 |
| b. | Explain the computer aided product design 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. i. Translate the rectangle in space by 2 units in the X direction and 4 units in the Y direction.  ii. Scale the original rectangle by a factor of 2 in the X direction and 3 in the Y direction.  iii. Rotatethe originalrectangle by45oabout theorigin. | CO1 | 10 |
| b. | With a neat flowchart depict the complete process for implementing a line drawing algorithm. | CO1 | 10 |
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| 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. List its applications in CAD. | 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 , G02 and G03* with relevant sketches. | CO3 | 10 |
| b. | Write the part programming for the figure shown below using cutter radius  compensation. | CO3 | 10 |

