INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR) - FEBRUARY 2022
Regulation: R18
COMPUTER AIDED DESIGN/ COMPUTER AIDED MANUFACTURING

Time: 3 Hours   **(ME)**   **Max Marks: 70**

Answer FIVE Questions choosing ONE question from each module
(NOTE: Provision is given to answer TWO questions from any ONE module)
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) What is computer assistance in design cycle? Explain GKS standard. **[7M]**

   (b) Summarize your understanding of synthesis and engineering analysis in the field of design. Explain how CAD helps to synthesize a product design and do engineering analysis for getting optimal design. **[7M]**

2. (a) What is raster scan graphics system? Explain the product cycle in a computerized manufacturing environment. **[7M]**

   (b) What are the designs related tasks performed by modern computer? Explain with block diagram. **[7M]**

MODULE – II

3. (a) What is solid modelling? Explain Boolean operations in solid modelling. **[7M]**

   (b) Find the midpoint of a Hermite cubic spline with the two points as [1, 1], and [6, 5] and the tangent vectors as [0, 4] and [4, 0]. **[7M]**

4. (a) Distinguish between geometry and topology. Explain various types of surfaces used in geometric modeling. **[7M]**

   (b) What are NURBS? Explain are the problems associated with NURBS. **[7M]**

MODULE – III

5. (a) Design the manual part programming manuscript sheet and explain how the entries are made in the sheet with the help of an example. **[7M]**

   (b) Explain the advantages of numerical control system. List the steps involved in the development of a proven part program in NC machining. **[7M]**

6. (a) What are the different types of contouring system in a CNC machine? Explain with neat sketches. **[7M]**

   (b) Outline the block diagram of adaptive control machining system and explain briefly. **[7M]**

MODULE – IV

7. (a) What is meant by a part family in Group Technology (GT)? Name and explain three parts classification and coding systems commonly used in GT. **[7M]**

(b) Explain computer aided process planning (CAPP). Discuss the data selection system in CAPP. **[7M]**

8. (a) Explain the steps involved in production flow analysis and the reason to carry out such analysis. **[7M]**

(b) What are the various computer aided tests used in CAQC? Explain the integration of CAQC with CAD and CAM. **[7M]**

MODULE – V

9. (a) Discuss the possible computer applications in manufacturing planning activities. **[7M]**

(b) Explain machine tools and related equipment's in computer integrated manufacturing. **[7M]**

10. (a) Why are the unskilled labors replaced with skilled labors in computer integrated manufacturing systems? **[7M]**

(b) Explain in the details the different data files in CIM and the system reports generated by CIM. **[7M]**

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