

Enrollment No.....



Faculty of Engineering  
End Sem Examination May-2023  
ME3CO14 CAD/CAM/CIM

Programme: B.Tech.

Branch/Specialisation: ME

**Duration: 3 Hrs.****Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- |        |   |   |
|--------|---|---|
| Q.1 i. | Mass manufacturing is characterised by-                     | 1 |
|        | (a) Low volume and high variety                             |   |
|        | (b) High volume and high variety                            |   |
|        | (c) High volume and low variety                             |   |
|        | (d) Low volume and low variety                              |   |
| ii.    | CAD/CAM is relationship between-                            | 1 |
|        | (a) Science and engineering (b) Manufacturing and marketing |   |
|        | (c) Design and manufacturing (d) Design and marketing       |   |
| iii.   | Item which best describes CAM is-                           | 1 |
|        | (a) Numerical control (b) Documentation                     |   |
|        | (c) Drafting (d) Geometric Modelling                        |   |
| iv.    | CAPP is closely associated with-                            | 1 |
|        | (a) Marketing (b) Quality control                           |   |
|        | (c) Manufacturing (d) Designing                             |   |
| v.     | G code for clock wise interpolation is-                     | 1 |
|        | (a) G73 (b) G75 (c) G02 (d) G42                             |   |
| vi.    | Drilling is example of-                                     | 1 |
|        | (a) Point to point machining (b) Line control               |   |
|        | (c) Contouring (d) None of these                            |   |
| vii.   | GT brings together and organises-                           | 1 |
|        | (a) Automation and tool production                          |   |
|        | (b) Common parts problems and tasks                         |   |
|        | (c) Parts and simulation                                    |   |
|        | (d) Documentation and analysis                              |   |

[2]

- viii. Which of the following is NOT true about FMS? **1**  
 (a) Expensive  
 (b) Difficult to alter for new products  
 (c) High degree of automation  
 (d) Skilled manpower for initial setup
- ix. In context of rapid prototyping SLS, stands for- **1**  
 (a) Selective Laser Simulator  
 (b) Sintering Laser Simulator  
 (c) Selective Laser Sintering  
 (d) Stereolithography Sintering
- x. In context of rapid prototyping, what is format of prototyping machine file? **1**  
 (a) .prt (b) .stl (c) .slt (d) .iges
- Q.2 i. Draw CIM wheel. **3**  
 ii. What is batch and shop production? How it differs from line production? **7**
- OR iii. Explain different types of plant layout used in a manufacturing organisation. **7**
- Q.3 i. What is concurrent engineering? **3**  
 ii. Explain CAE and write different types of analysis that can be performed. **7**
- OR iii. List general design rules which should be followed for design for manufacturing. **7**
- Q.4 i. What type of drives are used in CNC machines? **3**  
 ii. What is NC, CNC and DNC? Explain it. **7**
- OR iii. Critically differentiate between hard product variety and soft product variety. **7**
- Q.5 i. Discuss material handling system of FMS. **3**  
 ii. Describe OPITZ parts categorisation system by giving suitable example. **7**
- OR iii. What is CAPP? Also explain its types. **7**

[3]

- Q.6 Write short note on any two: **5**  
 i. Limitations of rapid prototyping **5**  
 ii. FDM **5**  
 iii. Laminated object manufacturing **5**

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Q.1	i.	Mass manufacturing is characterised by	1
		a.	
		b.	
		c. High volume and low flexibility	
		d.	
	ii.	CAD CAM is relationship between	1
		a.	
		b.	
		c. Design and manufacturing	
		d.	
	iii.	Item which best describes CAM is	1
		a. Numerical control	
		b.	
		c.	
		d.	
	iv.	CAPP is closely associated with	1
		a.	
		b.	
		c. Manufacturing	
		d.	
	v.	G code clock wise in her problem in	1
		a.	
		b. G02	
		c.	
		d.	
	vi.	Drilling is example of	1
		a. Point to point machining	
		b.	
		c.	
		d.	
	vii.	GT brings together and organises	1
		a.	
		b. Common parts problems and tasks	

- |       |   |   |
|-------|---|---|
|       | c.  |   |
|       | d.  |   |
| viii. | Which of the following is NOT true about FMS?             | 1 |
|       | a.  |   |
|       | b. Difficult to alter for new products                    |   |
|       | c.  |   |
|       | d.  |   |
| ix.   | SLS stands for (in context of Rapid Prototyping)          | 1 |
|       | a.  |   |
|       | b.  |   |
|       | c. Selective Laser Sintering                              |   |
|       | d.  |   |
| x.    | What is format of prototyping machine file                | 1 |
|       | a.  |   |
|       | b. .stl   |   |
|       | c.  |   |
|       | d.  |   |
| Q.2   | i. Drawing of CIM wheel                                   | 3 |
|       | ii. batch and shop production (3 marks)                   | 7 |
|       | differences from line production (4 marks)                |   |
| OR    | iii. different types of plant layout (6 marks)            | 7 |
| Q.3   | i. Explanation of concurrent engineering. (3 marks)       | 3 |
|       | ii. Definition of CAE (3 marks)                           | 7 |
|       | different types of analysis (4 marks)                     |   |
| OR    | iii. Listing of general design rules for DFM (7 marks)    | 7 |
| Q.4   | i. type of drives used in CNC machines. (3 marks)         | 3 |
|       | ii. NC (2 marks), CNC (2 marks) and DNC (2 marks).        | 7 |
| OR    | iii. Explanation of hard & soft product variety (7 marks) | 7 |
| Q.5   | i. material handling system of FMS. (4 marks)             | 3 |
|       | ii. Describe OPITZ parts categorisation system (3 marks)  | 7 |
|       | giving example. (3 marks)                                 |   |
| OR    | iii. What is CAPP. & Types                                | 7 |

Q.6	<b>Write short note on any TWO:</b>	
i.	Limitations of Rapid Prototyping.	<b>5</b>
ii.	FDM	<b>5</b>
iii.	Laminated object manufacturing	<b>5</b>

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