Code No: **R1641032** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

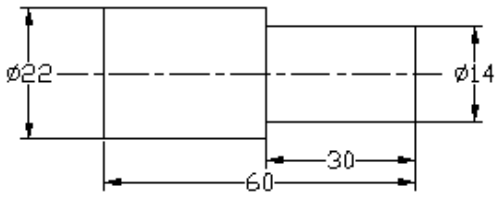
1. a) Explain the storage systems used in a computer. [3]
   b) Explain surface modeling. [2]
   c) What is adaptive control? [2]
   d) Explain MI CLASS system. [2]
   e) Name different types of CMM. [2]
   f) Explain MRP and what are the various inputs of MRP. [3]

PART–B *(4x14 = 56 Marks)*

2. a) Discuss about the input devices of CAD system. [7]
   b) Why CAD replaced conventional design? In what way the CAD helps is productive manufacturing? [7]

3. a) Explain in detail about Bezier surfaces and the Coons surfaces. [7]
   b) What are the major surface entities provided by CAD/CAM system? [7]

4. a) What do you understand by DNC system? Explain in detail about DNC system. [7]
   b) Write the part program for the following profile



[7]

5. a) Explain various components of a FMS in detail. [7]
   b) Explain the importance of CAPP in manufacturing industries. [7]

6. a) Explain the advantages and limitations of Non-Contact inspection over optical and contacts type. [7]
   b) Explain any two contact type inspection methods with neat sketch. [7]

7. a) Explain the following FMS layout configurations with a neat sketch.
      (i) In-line
      (ii) Open-field
      (iii) Ladder
      (iv) Loop [7]
   b) Differentiate Lean manufacturing and Mass production. [7]

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Code No: **R1641032** **R16** **Set No. 2**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) What are typical hardware components of a stand-alone CAD system? [2]
   b) What is wire frame modeling? [2]
   c) What is right hand rule? [2]
   d) Discuss benefits of GT in various Manufacturing industries. [3]
   e) What is the need of quality control in a manufacturing industry? How CAQC is useful in quality control. [3]
   f) What is MRP? What are its features? [2]

PART–B *(4x14 = 56 Marks)*

2. a) What do you understand by Hidden surface removal in detail with its advantages and limitation. [7]
   b) Define Clipping. Enumerate simple clipping algorithm. [7]

3. a) Explain in detail about Constructive Solid modeling. [7]
   b) What are the various editing commands used in drafting system. [7]

4. a) Explain the following
      (i) point-to-point cut mode
      (ii) straight cut mode
      (iii) contouring cut mode [7]
   b) Describe various G and M code in CNC machines [7]

5. a) How the human resources are utilized in FMS [7]
   b) Differentiate retrieval type and generative type CAPP systems. Explain their advantages and disadvantages. [7]

6. a) What are the various CMM machines used in industries? Explain any two in brief. [7]
   b) Explain the importance of the integration of CAD/CAM with inspection system. [7]

7. a) What do you mean by Computer integrated manufacturing? Explain in brief [7]
   b) What are the principles of Lean manufacturing. [7]

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Code No: **R1641032** **R16** **Set No. 3**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) Write any three differences between Raster-scan technique and Random scan technique. [3]
   b) Write the important features of layers. [2]
   c) Explain about servomotors used in spindle and feed control used in CNC machine tools . [3]
   d) Explain any two functions of FMS computer control system. [2]
   e) How accuracy differs from precision? [2]
   f) What are various material handling systems? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Enumerate about following input devices of CAD system
      (i) Light pen
      (ii) Digitizers
      (iii) Joy stick
      (iv) Mouse
      (v) keyboard [7]
   b) What are components of a CRT? Explain with neat sketch. [7]

3. a) Define solid modeling and explain the solid modeling in brief with its advantages and limitations. [7]
   b) What are the primitives used in solid modeling? [7]

4. a) Differentiate NC and CNC. [7]
   b) Why CAD is preferred over NC machines? [7]

5. a) How part classification is made in Group technology? [9]
   b) What are the advantages and limitations of group technology? [5]

6. a) What are the major functions of CAQC in manufacturing industry? [7]
   b) Draw and explain various CMMS used in manufacturing industry. [7]

7. a) Write any three major functions of AS/RS and write their advantages and disadvantages? [7]
   b) What re the various computer control systems used in CIM? [7]

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Code No: **R1641032** **R16** **Set No. 4**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

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PART–A *(14 Marks)*

1.	a)	What is polygon clipping?	[2]
	b)	Name any six manipulation techniques in CAD.	[2]
	c)	What is machining centre and explain its characteristics?	[3]
	d)	Explain part design attributes.	[2]
	e)	What are the various non-contact inspection methods?	[3]
	f)	What do you understand by lean manufacturing?	[2]

PART–B *(4x14 = 56 Marks)*

2.	a)	Explain different types of plotters.	[7]
	b)	What is ICG? Explain various elements of ICG.	[7]
3.	a)	What are the trending CAD/CAM softwares? Explain their applications in various industries.	[7]
	b)	What are the different display commands used in CAD modeling system?	[7]
4.	a)	Explain about computer aided part programming and what are its advantages and limitations?	[7]
	b)	Explain about open loop and closed loop systems.	[7]
5.	a)	Discuss OPTIZ coding system.	[7]
	b)	Enumerate steps involved in production flow analysis.	[7]
6.	a)	Explain following optical non-optical methods in detail (i) scanning laser beam device (ii) photogrammetry	[7]
	b)	Enumerate the role of computers in quality control.	[7]
7.	a)	Discuss various principles of material handling system.	[7]
	b)	Define AGV and explain different functions of AGV.	[7]

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