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Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)

M.Tech. (First Semester – Regular/Supplementary) Examinations, January – 2026

24MMTPE11021 – Computer Integrated Manufacturing

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. List any two types of manufacturing systems used in modern industries.	CO1	K1
b. What is the purpose of feedback devices in CNC machines?	CO2	K2
c. Write the purpose of spindle drives in CNC machines.	CO3	K2
d. What is the purpose of DNC in CNC manufacturing systems?	CO4	K1
e. What is the difference between ACO and ACC systems?	CO5	K2

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions	Marks	CO #	Blooms Level
2. a. Explain the basic concepts of Numerical Control (NC) and its classification.	5	CO1	K2
b. Compare open loop and closed loop control systems used in NC machines with neat sketches.	5	CO1	K4
(OR)			
c. Explain the incremental and absolute positioning systems used in NC with examples.	5	CO1	K3
d. Discuss the benefits of Computer Integrated Manufacturing Systems (CIMS) in modern industries.	5	CO1	K4
3.a. Explain the general architecture of a CNC machine tool with a neat block diagram.	5	CO2	K2
b. Describe the components of a CNC system and explain the function of each component.	5	CO2	K2
(OR)			
c. Explain the role of counting devices in CNC feedback and control systems.	10	CO2	K3
4.a. Explain how suitable work holding devices are selected for precision machining in CNC machines.	5	CO3	K3
b. Explain the working principle of an Automatic Tool Changer (ATC) and its application in CNC machining.	5	CO3	K3
(OR)			
c. Explain the importance of bearings in CNC machine tools.	5	CO3	K2
d. Illustrate with a neat sketch the working of a spindle drive system used in CNC machines.	5	CO3	K3
5.a. Explain manual part programming for CNC milling machines. Write a sample program for a simple milling operation.	5	CO4	K3
b. Differentiate between G-codes and M-codes. Explain any five commonly used codes with functions.	5	CO4	K2

(OR)

c.	Discuss the advantages of CNC machines over conventional machine tools.	5	CO4	K4
d.	Explain the configuration and working of a Direct Numerical Control (DNC) system.	5	CO4	K2
6.a.	Discuss the applications of adaptive control systems in various machining operations.	5	CO5	K3
b.	Explain how adaptive control improves machining performance and productivity.	5	CO5	K4

(OR)

c.	Explain Computer Aided Process Planning (CAPP). Describe the variant and generative approaches.	5	CO6	K3
d.	Explain the structure of a Computer Integrated Production Planning and Control (PPC) system.	5	CO6	K3

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