



INSTITUTE OF AERONAUTICAL ENGINEERING (Autonomous)

Dundigal, Hyderabad -500 043

MECHANICAL ENGINEERING

TUTORIAL QUESTION BANK

Course Name	COMPUTER AIDED MANUFACTURING
Course Code	BCC005
Class	M. Tech II Semester CAD/CAM
Branch	Mechanical
Year	2017 - 2018
Course Coordinator	M V Aditya Nag, Assistant Professor

OBJECTIVES

Computer aided manufacturing is a sub discipline of mechanical engineering, and optical engineering concerned with designing machines, fixtures, and other structures that have exceptionally low tolerances, are repeatable, and are stable over time. These approaches have applications in machine tools.

S No	QUESTION BANK	Blooms taxonomy level	Course Outcomes
UNIT – I			
COMPUTER AIDED PROGRAMMING			
Part - A (Short Answer Questions)			
1	What are the activities of CAD?	Remember	1
2	What are the activities of CAM?	Remember	1
3	Define NC system?	Remember	1
4	What is MCU?	Remember	1
5	List out any four advantage of using NC?	Remember	1
6	What are the limitations of using NC?	Remember	1
7	What are all the problems encountered with NC system?	Remember	1
8	What are the functions of diagnostic system in NC machine tools?	Remember	1
9	List out some of the important NC languages.	Remember	1
10	List any four post processor statements.	Remember	1
Part - B (Long Answer Questions)			
1	Write the four types of APT statements with examples.	Remember	1
2	Write and explain any five Postprocessor Statements.	Remember	1
3	Explain the types of motion commands.	Remember	1
4	Explain the code of part programming in detail.	Remember	1
5	Explain any five preparatory commands.	Remember	1
6	Explain any five motion commands.	Remember	1
7	Explain any five auxiliary commands.	Remember	1
Part - C (Problem Solving and Critical Thinking Questions)			
1.	Explain the computer assisted part programming in detail and also explain the working of post processor.	Understand	1
2.	Explain the types of motion commands in detail.	Remember	1

3.	Explain Postprocessor Statements.	Remember	1
4.	Explain the automatic tool path generation in detail.	Remember	1
5.	Explain the design and implementation of post processors.	Remember	1
UNIT-II			
TOOLING FOR CNC MACHINES			
Part – A (Short Answer Questions)			
1	What is adaptive control?	Remember	2
2	Write about the closed loop system.	Understand	2
3	Write about the interchangeable tooling system.	Remember	2
4	Write about preset and qualified tools.	Remember	2
5	What is adaptive control system briefly?	Remember	2
6	Write about the open loop system.	Remember	2
7	What is adaptive control system with optimization?	Remember	2
8	What is coolant fed tooling system.	Remember	2
9	What is adaptive control system with constraints?	Understand	2
10	Write about modular fixturing	Understand	2
Part - B (Long Answer Questions)			
1	Write the principle of operation of CNC machine tools.	Understand	2
2	Write about the basic components of CNC system	Understand	2
3	Explain DNC and types of DNC.	Understand	2
4	Write the advantages and disadvantages of DNC	Understand	2
5	Explain the components of DNC in detail.	Understand	2
6	Differentiate the closed and open loop system.	Remember	2
Part – C (Problem Solving and Critical Thinking)			
1	Differentiate between DNC and CNC machines.	Remember	2
2	Discuss the adaptive control of machining process for turning.	Remember	2
3	Discuss about the adaptive control with optimization.	Understand	2
4	Discuss the adaptive control of machining process for grinding.	Remember	2
5	Discuss about the adaptive control with constraints.	Understand	2
UNIT-III			
POST PROCESSORS FOR CNC			
Part - A (Short Answer Questions)			
1	Write about the necessity of post processor.	Understand	3
2	Write the functions of a post processor.	Understand	3
3	Write the general structure of a post processor.	Understand	3
4	What is DAPP based post processor.	Understand	3
Part – B (Long Answer Questions)			
1	Explain the general structure of a post processor.	Understand	3
2	Explain the functions of a post processor.	Understand	3
3	Write about the DAPP based post processor.	Understand	3
4	Write about the communication channels and major variables in DAPP based post processor.	Understand	3
5	Write about the creation of DAPP based post processor.	Understand	3
Part - C (Problem Solving and Critical Thinking Questions)			
1	Explain the general structure and the functions of a post processor.	Understand	3
2	Explain about the communication channels and major variables in DAPP based post processor.	Understand	3

UNIT-IV MICRO CONTROLLERS			
Part - A (Short Answer Questions)			
1	Write about micro controllers.	Remember	4
2.	Write the hardware components of a micro controller.	Remember	4
3.	Write about the PLC.	Remember	4
4.	Write the hardware components of the PLC.	Remember	4
5.	Write about the programming mnemonics timers.	Remember	4
6.	Write about the internal relays and counters.	Remember	4
7.	List the applications of PLCs in CNC machines.	Remember	4
Part – B (Long Answer Questions)			
1.	Explain about the microcontrollers and its hardware components.	Understand	4
2.	Explain the selection of micro controllers.	Understand	4
3.	Explain the application and programming of micro controllers.	Understand	4
4.	Explain the hardware components of PLC in detail.	Understand	4
5.	Explain the basic structure of PLC.	Understand	4
6.	Explain the principle of operations of PLC.	Understand	4
7.	Explain any two applications of PLCs in CNC machines.	Understand	4
8.	Explain about the internal relays and counters.	Apply	4
9.	Explain about the programming mnemonics timers.	Apply	4
Part - C (Problem Solving and Critical Thinking Questions)			
1.	Discuss in detail about the application of micro controllers and its structure.	Apply	4
2.	Discuss in detail the application of PLCs in CNC machines with examples.	Apply	4
3.	explain about the internal relays and counters in detail.	Apply	4
4.	Discuss in detail the basic structure and principle of operations of PLC	Apply	4
UNIT-V COMPUTER AIDED PROCESS PLANNING			
1	Define process planning.	Understand	5
2.	Write the various approaches in process planning.	Understand	5
3.	What are the components of generative CAPP systems?	Understand	5
4.	Why the retrieval CAPP system is called as variant CAPP system?	Understand	5
5.	List any two commercially available retrieval CAPP systems.	Understand	5
6.	List any two commercially available generative CAPP systems.		
7.	What is meant by CAPP?	Understand	5
8.	List the activities and associated with process planning.	Understand	5
9.	Explain the necessity of computers in inspection and quality control.	Understand	5
10.	Define CMM.	Understand	5
Part – B (Long Answer Questions)			
1	List the various components of a generative CAPP system and explain them in detail.	Apply	5
2.	Write the advantages of computers in inspection and quality control.	Apply	5
3.	List the limitations of CMM.	Apply	5
4.	Explain any two of the optical inspection methods in detail.	Apply	5
5.	Explain the artificial intelligence and expert systems.	Apply	5
6.	Write about the artificial neural networks.	Apply	5
7.	Importance of artificial intelligence in CAD.	Apply	5
8.	Write about the expert systems and its structures.	Apply	5

Part - C (Problem Solving and Critical Thinking Questions)			
1.	Explain about the artificial neural networks.	Apply	5
2.	Explain about the expert systems and its structures.	Apply	5
3.	Explain about the CMM in detail.	Apply	5
4.	Explain in detail about the computer aided testing.	Apply	5

Prepared By:

M V Aditya Nag, Assistant Professor

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