

S. No.

Date


VIT

 Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

SCHOOL OF MECHANICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST -II
FALL SEMESTER 2024-2025

SLOT: G1+TG1

Programme Name & Branch : B.Tech, Mechanical
 Course Code : BMEE401L
 Course Name : Computer Integrated Manufacturing
 Faculty Name(s) : Prof. SRIDHAR V G, Prof. SUYA PREM ANAND P,
 Prof. Oyyaravelu, Prof. Deepa A
 Class Number(s) : VL2024250103878, VL2024250103876,
 VL2024250103875, VL2024250103879

Date of Examination : 19/10/24
 Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
 - M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
 - Course Outcomes (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy)
- CO3: Interface real-time simulation with intelligent CNC machine tools using Digital Twins.
 CO4: Apply CAM software tools for solving real time component machining.
 CO5: Analyze the automated flow lines through FMS

Q. No	Question	M	CO	BL												
1.	Implement artificial intelligence to detect and analyse faults in the manufacturing process.	10	CO3	BL3												
2.	Design and develop a feasible CAPP technique for universal coupling shown in Fig. 1.	10	CO5	BL4												
<table border="1"> <thead> <tr> <th>S.No.</th><th>Part Name</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Yoke</td></tr> <tr> <td>2.</td><td>Center Block</td></tr> <tr> <td>3.</td><td>Taper Pin</td></tr> <tr> <td>4.</td><td>Collar</td></tr> <tr> <td>5.</td><td>Small pin</td></tr> </tbody> </table> Fig.1. Universal Coupling					S.No.	Part Name	1.	Yoke	2.	Center Block	3.	Taper Pin	4.	Collar	5.	Small pin
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1.	Yoke															
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3.	Evaluate and Implement FMS Strategies for a Mobile Manufacturing	10	CO5	BL5												

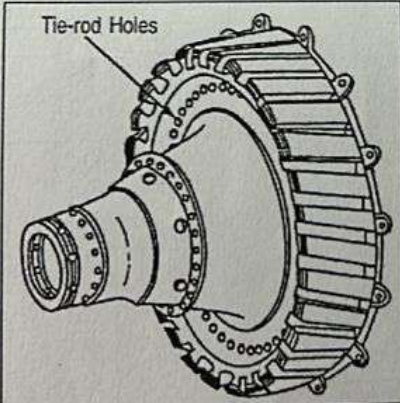

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	Unit.																																																										
4.	Apply Ranking order cluster method to the part Machine incidence matrix mentioned in the following table to identify logical part families and machine groups. Parts are identified by Letters and Machines are identified by numbers. <table border="1"> <thead> <tr> <th rowspan="2">Machines</th><th colspan="6">Parts</th></tr> <tr> <th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr> </thead> <tbody> <tr> <td>1</td><td>1</td><td></td><td></td><td></td><td>1</td><td></td></tr> <tr> <td>2</td><td></td><td></td><td></td><td>1</td><td></td><td>1</td></tr> <tr> <td>3</td><td>1</td><td>1</td><td></td><td></td><td></td><td></td></tr> <tr> <td>4</td><td></td><td></td><td>1</td><td>1</td><td></td><td></td></tr> <tr> <td>5</td><td></td><td>1</td><td></td><td></td><td>1</td><td></td></tr> <tr> <td>6</td><td></td><td></td><td>1</td><td>1</td><td></td><td>1</td></tr> </tbody> </table>	Machines	Parts						A	B	C	D	E	F	1	1				1		2				1		1	3	1	1					4			1	1			5		1			1		6			1	1		1	10	C05	BL4
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5.	Explain in detail an inspection technique suitable for detecting and repairing cracks in the rotary component of an aviation engine shown in Fig.2.  Fig.2. Rotary component of Aircraft Engine	10	C04	BL3																																																							