



Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Programme Name: B. Tech- Mechanical

Semester : VIII

Course Name : Computer Integrated Manufacturing

Time : 03 hrs.

Course Code : MEPD 4007P

Max. Marks : 100

Nos. of page(s) : 1

Instructions:

- i. Read the instructions carefully before attempting.
- ii. No submission of the Answer Sheet shall be entertained after due time.
- iii. Attempt All Questions. One question from section B and C have an internal Choice.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	List out the advantages of CIM.	4	CO1
Q 2	Define unit load formation equipment.	4	CO1
Q 3	Explain the roles of prototypes.	4	CO2
Q 4	Summarize the benefits of Group Technology.	4	CO2
Q 5	Apply your knowledge and write a short note on the shop floor management system.	4	CO3

SECTION B
(4Qx10M= 40 Marks)

Q 6	Define the principles of rapid prototyping technology with a suitable diagram.	10 M	CO1
Q 7	Explain three general methods used to classify and code the components of the part family.	10 M	CO1
Q 8	(a) Explain and discuss Cellular Manufacturing. (b) Explain and discussed composite part concept in accordance with Group Technology.	5+5 M	CO2
Q 9	Identify the benefits of computer-aided process planning and discuss the Retrieval CAPP and Generative CAPP Systems.	10 M	CO3

OR

	(a) Write a note on computer aided cost estimation. (b) Identify the various component of computer aided shop floor control and discussed about them with the help of a block diagram.	5+5 M	
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SECTION-C
(2Qx20M=40 Marks)

Q 10	(a) Explain concurrent engineering with suitable block diagram.	5+5+10	CO2																																																																													
	(b) Infer the limitations of production flow analysis																																																																															
	(c). Consider the problem of 5 machines and 10 parts. Try to group them by using Rank Order Clustering Algorithm																																																																															
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="10">COMPONENTS</th> </tr> <tr> <th>M/C</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>M2</td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>1</td> </tr> <tr> <td>M3</td> <td>1</td> <td></td> <td></td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td></td> </tr> <tr> <td>M4</td> <td></td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td></td> <td></td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>M5</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td></td> <td></td> </tr> </tbody> </table>				COMPONENTS										M/C	1	2	3	4	5	6	7	8	9	10	M1	1	1	1	1	1		1	1	1	1	M2		1	1	1					1	1	M3	1				1	1	1	1			M4		1	1	1				1	1	1	M5	1	1	1	1	1	1	1	1		
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Q 11	(a) Explain the utilization of economic order quantity with a suitable example.	10+5+5	CO3
	(b) A manufacturing company places a semi-annual order of 24,000 units at a price of \$20 per unit. Its carrying cost is 15% and the order cost is \$12 per order. Required: What is the most economical order quantity? How many orders need to be placed? (c) Write a short note on Pareto Principle.		
	OR	5+10+5	
	(a) Identify objectives of Inventory Management system. (b) Identify the various modern techniques used for Inventory Control and discuss Re-Order Point technique. (c) Identify the smart sensors that enable Industry 4.0 and discuss them.		