KUMARAGURU college of technology
character is life

Register Number:……

M.E DEGREE EXAMINATIONS: DEC 2015

(Regulation 2014)

Third Semester

INDUSTRIAL ENGINEERING

P14IE*T*E37: Cellular Manufacturing Systems

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Matching type item with multiple choice code CO1 [K_1]

List I	List II
A. Hierarchical codes	i. Mono codes
B. Attribute codes	ii. Optiz codes
C. Decision tree codes	iii. Hybrid codes
D. Coding system	iv. Poly codes

	A	B	C	D
a)	iii	iv	ii	i
b)	i	iv	iii	ii
c)	i	ii	iii	iv
d)	i	iv	ii	iii

2. Dissimilar machines have been arranged in cells is called CO1 [K_1]

a) Group Technology b) Part family

c) cellular manufacturing d) Agile manufacturing

3. Assertion (A): The parts which are similar in their design characteristic grouped in a family referred as design part family CO2 [K_1]

Reason (R):The characteristic used in classifying parts are referred to as manufacturing part families

a) Both A and R are true and R is the correct explanation of A

b) Both A and R are true and R is not the correct explanation of A

c) A is true but R is false

d) A is false but R is true

4. The parts are processed in more than one cell is known as CO2 [K_1]

a) Extra parts b) Bottleneck parts

c) Exceptional parts d) Rotational parts

5. Consider the following statement CO3 [K_1]

1. Input required for cell design is part data, machine data, constraints.
2. Assigning part families to cell is the one the steps in cell design.
3. Minimization of output is one of the objectives of CMS.

Which of these statements is/are correct?

a) 1 and 2 are correct b) 1,2 and 3 are correct

c) 1 is correct d) 1 and 3 are correct.

6. Number of machines available is more and they process very few components. This type of machine is known as CO3 [K_1]

a) Critical machine b) Non-Critical machine

c) Ideal machine d) Bottleneck machine

7. In SLCA, a particular component is completely processed by both the machines i and j in such cases S_{ij} CO2 [K_1]

a) 1 b) Between 0 and 1

c) 0 d) 0.1

8. The degree to which jobs are formally defined with specific, well-defined tasks is known as CO5 [K_1]

a) Centralization b) Complexity

c) Co-ordination d) Formalization

9. layout of the machine within the shop floor represents CO3 [K_1]

a) Extra cell layout b) Inter-cell layout

c) Cell formation d) Intra-cell layout

10. The rules for cell loading is CO4 [K_1]

1. Search priority
2. No of feasible cells
3. Common cell capacity
4. Earliest due date

The correct sequence of the procedure is

a) 1- 3 - 4- 2 b) 1 -2 – 3 - 4

c) 1- 4- 2- 3 d) 4 – 1 – 2 - 3

PART B (10 x 2 = 20 Marks)

11.	How does the hierarchy code works?	CO3	[K_1]
12.	List out the types of machine cells and layout.	CO2	[K_2]
13.	What do you understand the term “cell design”?	CO2	[K_1]
14.	Identify the Limitations of PFA.	CO2	[K_3]
15.	Distinguish between monocode and polycode	COL	[K_2]
16.	List the traditional methods used in CMS.	CO2	[K_2]
17.	Examine the criteria to be considered for parametric analysis.	CO4	[K_5]
18.	List out the life cycle issues in GT.	CO4	[K_2]
19.	How to establish the team work in a firm?	CO3	[K_2]
20.	Differentiate cell priority and product priority.	CO3	[K_2]

PART C (10 x 5 = 50 Marks)

21.	Explain the characteristics and design of groups in GT.	CO1	[K_2]
22.	Demonstrate the benefits and issues of GT	CO1	[K_2]
23.	Construct the cell formation using Genetic Algorithm.	CO2	[K_3]
24.	Illustrate the inter and intra cell layout in GT/CMS	CO3	[K_2]
25.	How batch sequencing can be done in GT?	CO3	[K_2]
26.	Identify how to measuring CMS performance.	CO4	[K_3]
27.	Demonstrate PBC in GT/CMS	CO4	[K_2]
28.	Show how the cell loading help to improve the performance measurement and control.	CO4	[K_3]
29.	Construct the use of computer models in GT/CMS	CO5	[K_3]
30.	Construct the steps for similarity coefficient method to the part machine incident matrix to identify machine cells.	CO2	[K_3]

PART D (2 x 10 = 20 Marks)

31.	Apply the rank order clustering technique to the part machine incident matrix in following table to identify the logical part families and machine groups.	CO2	[K_3]

MACHINES	PARTS							
		1	2	3	4	5	6	7
	1		1		1			1
	2			1		1		
	3	1	1		1			1
	4	1		1			1	
	5			1	1	1	1	

32. Identify how GT and MRP framework helps to measure performance in CMS. CO4 [K_3]

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