

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B.Tech Mechatronics

Subject (Course): Computer Integrated Manufacturing

Course Code: MEEL 422

No. of page/s: 2

Semester – VII

Max. Marks : 100

Duration : 3 Hrs

Section A (20 marks)

- Q1 Define unit load. List the design considerations in material handling. (1+4)
- Q2 List the industries where the FMS situation can be applied. (5)
- Q3 Sketch the hierarchical database model for a lathe assembly. (5)
- Q4 Define sequencing. List some of its advantages. (1+4)

Section B (40 marks)

- Q5 What is shop floor control & explain the different phases in shop floor control.
- Q6 Explain vehicle management aspect for the efficient operation of AGVs.

OR

- Q6 Enlist the different material transport equipments. Explain any one of them in detail. (3+7)
- Q7 Derive the expression for EOQ for the infinite rate of replenishment model of inventory.
- Q8 What are the various inputs & outputs for MRP? Explain each one of them.

Section C (40 marks)

- Q9 i) Explain the different characteristics of inventory model. (15)
- ii) If the annual demand of an item becomes half, ordering cost double, holding cost one-fourth & the unit cost twice, then find the ratio of new EOQ & the earlier EOQ. (5)

Q10 From the following machine part incidence matrix, create the machine cells using the PFA approach.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	1		1		1					1	1		1			1	1		1	
B	1		1			1			1		1			1	1	1	1		1	
C	1		1		1			1		1		1				1	1		1	
D				1			1							1	1	1		1		1
E	1	1		1									1				1		1	
F		1				1	1	1			1		1		1			1		
G			1		1					1		1								
H						1		1			1							1		
I				1					1					1						1
J		1		1			1							1						1

OR

Q10 What is meant by module merger & module synthesis in PFA? Apply the same on the following to reduce the number of modules.

Modules	Machines	Components
1	1, 2,6,8,9,16	37,42
2	13,8,11,12	3,24
3	7,6,8,10	1,13,25
4	10,6,8	12,26,31,39
5	11,4,5,8,12	9,20,27,30
6	12,8	11,22
7	14,2,6,8,9,16,3	2,6,17,35
8	3,6,16	7,34,36
9	16,2,9,6,8	10,18,32,38
10	2,8,9,6	28,40
11	9	4
12	4,5,15,6,8	5,14,19,21,23,29
13	6,5,8,15	8,33,43
14	15,5,8	41
15	8,5	15
16	5	16