	P1	5ME664	Page No 1										
			U.S.N										
and	X	(An Autonomou Sixth Semes	us Institution affiliated ster, B.E Mechanic	al Engineering									
	Semester End Examination; May / June - 2018 Computer Integrated Manufacturing												
Computer Integrated Manufacturing Time: 3 hrs Max. Marks: 100													
	Note: i) Answer FIVE full questions, selecting ONE full question from each unit.												
		ii) Any missing data may be s	•										
1		Evalain the following anodustic	UNIT - I										
1	a.	Explain the following productio	-		10								
			i) Production capacity	(iii) Production rate	10								
	1		v) Utilization	· · · · · · · · · · · · · · · · · · ·	1								
		• • •		ing plant must be processed throug									
		average of 6 machines. There are 20 new batches of parts produced each week. Other pertinent											
		data are as follows :											
		Average operation time = 6 mins, average setup time = 5 hrs, average batch size = 25 parts,											
		•		18 machines in the plant. The	plant								
		operates on an average of 70 pro											
		(i) Determine the manufacturin	-	-									
		(ii) Determine the plant capacit	- · · ·	nine the plant utilization									
		With simple sketches, explain d	• •	e configuration.	12								
	b.	With a simple sketch, explain w	e		8								
			UNIT - II										
3		•		min. The average down time per									
		will be 6 mins and the probability of break down per cycle is equal for all cycles and is equal to											
		0.004. Determine production rate and time efficiency by considering both upper bound and											
		lower bound approaches.											
	b.	A 24 station transfer time has	0.7 mins, an averaged down tim	ne of									
		6.0 min/line stop occurrence and a station failure frequency of 0.01 for all stations. A proposal											
		has been submitted to locate a storage buffer between station 12 and 13 to improve line											
		efficiency. Using upper bound approach determine the current time efficiency and prod											
		rate and also determine the max	iency production rate that would r	esult									
		from installing a storage buffers.											
4	a.	a. List the objective of line balancing.											
	b.	Explain the following :											
		(i) Cycle time	(ii) Station time	(iii) Repositioning efficiency	12								
		(iv) Balancing efficiency	(v) Procedure constraint	s and precedence diagram	12								

(vi) Total work content

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UNIT - III

5 a.	With a neat sketch,	explain parts :	feeding system of a	an automated assembly system.	
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b.	With	the	help	of	neat	sketches,	explain	in	detail	a	carousel	type	and	single	station	8
	assem	bly s	ystem	•												0

- 6 a. With a block diagram, explain retrieval type of process planning.
 - b. Explain the inputs and outputs from MRP system.

UNIT - IV

7 a. Explain the categories of AGV's.10b. Explain any five types of AS/RS.108 a. Explain the basic components of PLC.10b. Write short notes on:10(i) Sensors10(ii) Actuators10

UNIT -V

9 a	a. What are Automatic Identification and Data Capture (AIDC)? Explain the three principal	8
	components of AIDC.	0
b	b. Explain the classification of AIDC technology.	6
C	e. List some of the common applications of AIDC technologies.	6
10 a	. Explain with neat sketches, cantilever and horizontal arm types of CMM construction.	8
b	. With a simple sketch, explain basic function of a machine vision system.	12

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