MANIPAL INSTITUTE OF TECHNOLOGY
A Constituent Institute of Manipal University, Manipal

VII SEMESTER B.TECH INDUSTRIAL AND PRODUCTION ENGINEERING

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: FLEXIBLE MANUFACTURING SYSTEMS [MME 467]

REVISED CREDIT SYSTEM

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:
- ❖ Answer **ANY FIVE FULL** questions.
- ❖ Missing data may be suitably assumed.

1A.	Automation is an evolutionary rather than revolutionary concept. Justify.	**05**
1B.	Explain the classifications of Industrial Robot	**03**
1C.	Write short note on machine vision	**02**
2A.	Explain the part classification system developed by Organization for Industrial Research with an example	**04**
2B.	Four machine will constitute into a GT cell. The from-to-data for the machine is as given in Table	**04**

From	*To*			
	1	**2**	**3**	**4**
1	0	0	15	35
2	20	0	50	0
3	40	0	0	25
4	20	0	0	0

i)   Determine the most logical sequence of machines for the given data according to from/to sums and from/to ratios

ii)   Draw the network diagram for most logical sequence

iii)   Calculate the percentage of in-sequence, by-passing, and back-tracking moves

iv)   Which type of material handling layout you would suggest for this GT cell

2C.	Explain the significance of composite part in cellular manufacturing	**02**

3A. Discuss in detail the mistake proof technique – a lean tool   05

3B. DNG Pvt LTD is looking forward to shift from a push to pull production. What are   03
the advantages of such a system over the traditional system?

3C. Write short note on 5S   02

4A. Explain the general phases of simulation process with a flow chart   04

4B. Explain the role of workers involvement in JIT   04

4C. Write a short note on FMS database   02

5A. Swapan Kumar is the maintenance staff in an assembly plant belonging to one of   04
leading automotive firm. His job is to calibrate all the sensors present in the plant
periodically. If the plant is having automated production line with minimum human
interaction, what are the different sensors that he need to check as a part of his
routine and explain the working of any two type of sensors?

5B. Explain the role of modular software   04

5C. What is the role of key machine in FMS   02

6A. ABC Pvt. Ltd. was a very well established company and had a monopoly but out of   05
their over confidence they started losing their valuable customers. Due to the loss
there was a large amount of inventory getting accumulated. You have taken the
charge of the industry and have an experience of working in Japanese firm and have
taken an oath to get back the industry reputation. What technique would you choose?
Explain the technique in brief.

6B. Write short notes on   05

  i) Machine Cell Design
  ii) Planning the FMS

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