

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 714604N**Date: 08-01-2014****Subject Name: Production Management Systems****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What do you mean by production management? **07**
 “It is not possible for production system facilities to perform effectively and efficiently without manufacturing support systems in a factory.” Justify the statement.
- (b) Define work study. What are the objectives of work study? Establish the relationship between work measurement and method study. **07**
- Q.2** (a) Describe the basic steps in method study in detail with the aid of diagram. **07**
- (b) Define and discuss in details with suitable example “Man and Machine Chart”. **07**

OR

- (b) It is required to machine a plane surface 100 mm X 50 mm of a cast iron block on a milling machine. An operator performed the following elements for which observed times and ratings are given below: **07**

Element	Observed time, minute	Rating	Relaxation Allowance
Setting and clamping the CI block into a vice.	1.6	85	11%
Positioning the CI block for cutting by moving up the machine table and switch on the m/c.	0.5	100	11%
Cutting the required surface	3.0	95	12%
Lower down the machine table & switch off m/c.	0.3	90	11%
Remove the block from vice.	0.2	110	10%

Calculate normal time of each element, normal time of the job and standard time of the job.

- Q.3** (a) Discuss in detail the functions of Production Planning and Production Control with examples. **07**
- (b) Discuss the characteristics of job order production, batch production and mass production. **07**

OR

- Q.3** (a) What is scheduling? State the objectives of scheduling and factors affecting scheduling. **07**
- (b) Explain dispatching and state various activities of dispatching in brief. **07**

- Q.4 (a)** Explain in brief the benefits and limitations of MRP. **07**
(b) Explain MRP II. How does it differ from MRP? **07**

OR

- Q.4 (a)** Describe elements of JIT. State the pre-requisites of JIT. **07**
(b) Explain with suitable example the concept and functions of Kanban. **07**
- Q.5 (a)** The following is the single machine scheduling problem with weights. **07**

Job (j)	1	2	3	4	5	6
Processing time (t_j)	15	4	6	12	9	8
Weight (w_j)	2	1	2	1	3	3

Determine the sequence which will minimize the weighted mean flow time of the above problem. Also find the weighted mean flow time.

- (b)** Consider the following 2 machines and 6 jobs flow shop scheduling problem. Using Johnson's algorithm, obtain the optimal sequence which will minimize the make span. Also find out the make span for optimal sequence. **07**

Job i	Machine 1	Machine 2
1	6	7
2	2	4
3	14	11
4	11	2
5	9	8
6	12	10

OR

- Q.5 (a)** What is job shop scheduling? Distinguish it from flow shop scheduling problem. **07**
(b) What is difference between value engineering and value analysis? How does value engineering help to improve productivity? **07**
