

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – I • EXAMINATION – WINTER 2012****Subject code: 714604****Date: 12-01-2013****Subject Name: Production Management Systems****Time: 02.30 pm – 05.00 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) Explain production system facilities and manufacturing support systems with example. **07**
- (b) Define method study. Explain the objectives of method study. Enlist the pre-requisites for method study. **07**

- Q.2** (a) Define micro motion study. Explain its benefits with suitable example. What are the steps in micro motion study? **07**
- (b) Explain performance rating and computation of standard time. **07**
In a time study job, at the preliminary level 5 observations are made with the individual observations being 6, 6, 7, 5, 7 units of time. Calculate sample size (no. of observations required for 95% confidence level and the accuracy desired is 10%, 5%).

OR

- (b) An operator working on a drilling machine performed the following elements for which observed times and ratings are given below: **07**

Element	Observed time, minute	Rating	Relaxation Allowance
Position job into a drill jig.	0.22	85	13%
Switch on m/c & lower the drill	0.07	100	10%
Drill hole.	1.50	95	12%
Raise drill & switch off m/c.	0.06	90	11%
Remove job from jig.	0.11	110	10%

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

- Q.3** (a) Define “Production Planning and Control”. State its objectives. **07**
- (b) Differentiate between Production Planning and Production Control with examples. **07**

OR

- Q.3** (a) Define routing. Describe rout sheet with suitable example. **07**
- (b) Write short note on dispatching and machine loading. **07**

- Q.4** (a) What is material requirement planning (MRP)? Discuss its usefulness and limitations in batch production industry. **07**
- (b) Explain the various inputs of MRP. What is MRPII? **07**

OR

- Q.4 (a)** Define JIT. Describe characteristics and goals of JIT. **07**
(b) Explain (i) Kanban and (ii) Benefits and limitations of JIT. **07**

- Q.5 (a)** The following is the single machine scheduling problem with weights. **07**

Job (j)	1	2	3	4	5
Processing time (t_j)	14	5	4	13	7
Weight (w_j)	2	1	2	1	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 5 jobs flow shop scheduling problem. Using Johnson's algorithm, obtain the optimal sequence which will minimize the make span. **07**

Job i	Machine 1	Machine 2
1	7	8
2	1	4
3	15	12
4	8	5
5	11	6

OR

- Q.5 (a)** Define flow time, lateness and tardiness. Distinguish between single machine scheduling and flow shop scheduling. **07**
(b) What is value engineering? What are the different types of values? **07**
 Discuss various fields of application of value engineering.
