Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2724610 **Date: 02/06/2016**

Subject Name: Production management System

Time:10:30 am to 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.**

			Marks
Q-1	(a)	Enlist the various manufacturing system and discuss their characteristics using suitable product.	07
	(b)	Enlist the salient features of JIT	07
Q-2	(a)	Explain the different phases of Production Planning and control.	07
	(b)	A manufacturing company processes different jobs on two machines M1 and M2. Number of units of each job and its processing times on M1 and M2 are given in the following table. Find the optimum sequence, the total minimum elapsed time and idle time for each machine.	07

Job	Machine M1	Machine M2
1	7	4
2	8	2
3	10	6
4	3	6
5	7	5
6	4	7
7	5	2
8	8	6
9	5	7
10	6	6

OR

	(b)	Consider the following 3 machines and 5 jobs flow shop problem. Check weather Johnson's rule is extended to this problem. If so what is the optimal schedule and makespan.	07

Job	M1	M2	M3
1	11	10	12
2	13	8	20
3	15	6	15
4	12	7	19
5	20	9	7

Q.3 (a) State the relationship between Aggregate production planning and Master Production schedule. 07

(b) Discuss the necessity of Performance rating in time study and determine the normal time and standard time for following job. 07

An operator working on a pillar drilling machine performed the following elements for which the observed time and ratings are given below:

Element	Observed time	Rating	Relaxation allowance
A	0.20	80	11%
B	0.08	100	11%
C	2.20	90	13%
D	0.05	80	11%
E	0.10	110	11%

OR

Q.3 (a) Discuss various inputs and outputs of MRP. 07

(b) Define time study. Name the equipments used and explain their utility in brief. 07

Q.4 (a) Discuss the stages of development from MRP to MRP-II 07

(b) Prepare a left hand –right hand chart for assembly of a Bolt-Nut-Washer Component of Assembly: 1. Bolt 2. Nut 3. Washer 07

OR

Q.4 (a) Explain the working of KANBAN system using necessary diagram. 07

(b) End item P is composed of three subassemblies: K, L, and W. K is assembled using 3 Gs and 4 Hs; L is made of 2 Ms and 2 Ns; and W is made of 3 Zs. On-hand inventories are 20 Ls, 40 Gs, and 200 Hs. Scheduled receipts are 10 Ks at the start of week 3, 30 Ks at the start of week 6, and 200 Ws at the start of week 3. One hundred Ps will be shipped at the start of week 6, and another 100 at the start of week 7. Lead times are two weeks for subassemblies and one week for components G, H, and M. Final assembly of P requires one week. Include an extra 10 percent scrap allowance in each planned order of G. The minimum order size for H is 200 units. 07

Develop each of the following:

a. A product structure tree.

b. An assembly time chart.

c. A master schedule for P

Q.5 (a) Discuss the importance of motion economy in workplace designing. 07

(b) 1. Discuss different type of Values. 07

2. State the cost-function relationship.

OR

Q.5 (a) Differentiate between Value engineering and value analysis. 07

(b) Explain Man-Machine chart using a suitable example. 07