Registration No. : | | | | | | | | | | |

Total number of printed pages – 3

MBA

MBA 204

Second Semester Examination – 2013

PRODUCTION AND OPERATION MANAGEMENT

QUESTION CODE : A 463

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** and **2** which are compulsory and any **four** from the rest.*

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 ×10

   (a) Define standard time

   (b) What is the importance of vertical integration ?

   (c) What are the different allowances used in time study ?

   (d) What are the limitations of product layout ?

   (e) What are the different symbols used in flow process chart ?

   (f) What is the difference between EOQ and EBQ ?

   (g) What are the different estimation times involved in PERT ?

   (h) What is P and Q systems of inventory ?

   (i) What are the errors involved in acceptance sampling ?

   (j) What is the difference between designed capacity and effective capacity ?

2. (a) What is TQM ? Briefly discuss the principles associated with TQM. 3

(b) A machine is working to specification of 12.58 ± 0.05 mm. The study of 50 consecutive pieces shows the following measurements put into 10 groups of 5 each. 7

1	2	3	4	5	6	7	8	9	10
12.62	12.63	12.62	12.61	12.59	12.57	12.57	12.59	12.63	12.70
12.6	12.56	12.56	12.66	12.58	12.63	12.56	12.59	12.60	12.71
12.62	12.60	12.57	12.62	12.57	12.59	12.61	12.60	12.62	12.63
12.61	12.59	12.58	12.61	12.59	12.59	12.59	12.59	12.63	12.56
12.65	12.63	12.63	12.60	12.56	12.59	12.59	12.62	12.66	12.58

Determine the process capability and 3 sigma limit for $\bar{X}$ chart.

3. (a) Discuss the different steps involved in new product development. 3

(b) A manufacturing purchases item in lots of 1000 units which is a requirement for one quarter. The cost per unit is Rs. 200, the order cost is Rs 100 per order, the quarterly inventory carrying cost rate is 5%. Then calculate

(i) EOQ

(ii) Total annual cost.

(iii) Saving due to EOQ purchase 7

4. Define production and operation management (POM). Discuss the different functions of Production, Planning, and Control (PPC). 10

5. Write short note on any **two** of the following : 5×2

(a) Hybrid layout

(b) ABC Analysis

(c) Stopwatch Time study procedure

(d) Priority dispatching rules of scheduling.

6. (a) Explain the different basic strategies involved in the capacity planning. 3

(b) In a factory, seven jobs are performed on thee machines (in order of A,B,C). The time required for each job on each machine is given below. On the basis of the information, identify the optimal sequence and calculate the in and out time for each job an each machine and the total elapsed time. 7

JOBS	MACHINE-1	MACHINE-2	MACHINE-3
A	3	4	6
B	8	3	7
C	7	2	5
D	4	5	11
E	9	1	5
F	8	4	6
G	7	3	12

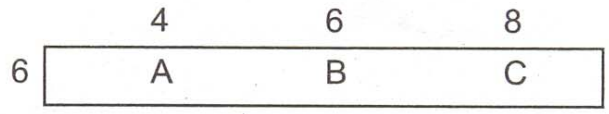
7. (a) Differentiate between breakdown and preventive maintenance. 3

(b) Frequency of breakdown is as follows : 7

Number of Breakdowns	0	1	2	3
Frequency of occurrence	20	30	50	10

If the average cost of a breakdown is Rs. 2000 and the cost of preventive maintenance is Rs. 2500 per month, should we use preventive maintenance ?

8. Consider the following initial layout with unit cost matrix. Use the CRAFT pair wise interchange technique to obtain the desirable layout. 10



Initial Layout

To → From ↓	A	B	C
A	—	1	8
B	2	—	1
C	6	2	—

Flow Matrix