

Code No: R5-12004/MBA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

MBA-II Semester Supplementary Examinations February -2010

PRODUCTION & OPERATIONS MANAGEMENT

Time:3hours

Max.Marks:60

Answer any Five questions  
All questions carry equal marks

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- 1.a) What activities are involved in the operations function? How does operations interact with other functional areas?
- 2.a) What does design for manufactures entail? List several techniques that can facilitate the DFM process.  
b) What kinds of analyses are conducted in a feasibility study for new products?
3. The table given shows, the tasks necessary for the assembly of elements, the length of time needed to perform each task and the operations that must be complete prior subsequent operations

Element	Precedence	Time (Min)
A	-	2
B	A	4
C	B	5
D	-	5
E	D	3
F	-	1
G	F	2
H	C, EG	4

- a) Calculate the cycle time necessary to complete 300 elements in a 35 hour week.
  - b) What is the minimum number of workstations that can be used on the assembly line and still reach the production quota. Balance the line and calculate the line's efficiency.
  - c) Rebalance the line with a cycle time of 9 minutes, how do the number of workstations, output and line efficiency change.
4. The demand for college text books is high during the beginning of each semester and then takes off during the semester. The unavailability of books can cause a professor to switch adoptions, but the cost of storing books and their rapid obsolescence must also be considered. Given the demand and cost factors shown. Use the transportation method to design an aggregate production plan for college press that will economically meet demand. What is the cost of the production plan.

Cont...2

Months	Forecast
Feb-April	5000
May-July	10,000
Aug – Oct	30,000
Nov-Jan	25,000

Regular capacity per quarter	= 10,000 books
Overtime capacity per quarter	= 5000 books
Sub contracting capacity per quarter	= 10000 books
Regular production rate	= Rs.20 per book
Overtime wage rate	= Rs.30 per book
Sub contracting cost	= Rs.35 per book
Holding cost	= Rs.2.00 per book.

- 5.a) Why is scheduling a job shop so difficult.  
 b) What quantitative techniques are available to help develop employee schedules.
- 6.a) Explain procedure involved in work sampling for establishing standard time.  
 Discuss its advantages over time study.  
 b) Explain various objectives of method study.
- 7.a) Explain various elements involved in productivity cycle.  
 b) Define productivity. Explain various approaches to measure productivity.
- 8.a) Briefly describe the dimensions of quality,  
 b) Twenty samples of  $n = 200$  were taken by an operator at a work station in a production process. The number of defective items in each sample were recorded as follows.

Sample	No. of defectives	Sample	No. of defectives
1	12	11	16
2	18	12	14
3	10	13	12
4	14	14	16
5	16	15	18
6	19	16	20
7	17	17	18
8	12	18	20
9	11	19	21
10	14	20	22

Develop a P chart using 3 sigma limits. Plot the observations to determine if the process was out of control at any point.