PGDM, 2013-15
Operations Management
DM-304
Trimester – III, Supplementary Examination: September 2014

Time allowed: 2 Hrs 30 Min

Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. In case of rough work, please use answer sheet.

Section A: Short answer questions (Five marks each. Attempt three; total marks 15)

A1. Considering the 'transformation process' view of the operations function, name and give examples of any four different kinds of transformation processes.

A2. What are some non-economic factors that can influence a firm's outsourcing decisions?

A3. Are you in favour of simplification and standardization in product design? Give reasons for your answer.

A4. Briefly compare the storage and movement of material in a process layout and in a product layout.

A5. List any three characteristics of services and briefly write about the implications these have for designing of services.

Section B: 10 marks each. Attempt any 2; total marks 20

B1.

a. Describe any four tools used in quality management.
b. A lot has been written about lean systems ever since Toyota pioneered it. Yet, a number of companies have failed in implementation of lean systems. What are the pre-requisites for lean system to succeed?

B2. The manager of a car wash received a revised price list from the vendor who supplies soap, and a promise of a shorter lead time for deliveries. Formerly, the lead time was four days, but now the vendor promises a reduction of 25 percent in that time. Annual usage of soap is 4,500 gallons. The car wash is open 360 days a year. Assume that daily usage is normal, and it has a standard deviation of 2 gallons per day. The ordering cost is Rs.1500 and the annual carrying cost is Rs.15 per gallon. The revised price list (cost per gallon) is shown in the following table:

Quantity	Unit Price
1 – 399	Rs.100

400 – 799	Rs.85
800 +	Rs.81

a. What order quantity is optimal?
b. What re-order point is appropriate if the service level is 95%? (for 95% service level, z = 1.64)

B3. Consider the following project information

Activity	Activity Time (Week)	Immediate predecessors
A	4	--
B	3	--
C	5	--
D	3	A,B
E	6	B
F	4	D,C
G	8	E,C
H	12	F,G

(a) Draw the network diagram for this project.
(b) Specify the critical path(s).
(c) Calculate the total slack for the activities A & D.

Section C: 15 marks

C1. A firm producing video telephones need to develop an aggregate plan with the help of following information:

Demand and working days							
	Jan	Feb	Mar	Apr	May	June	Total
Demand Forecast	500	600	650	800	900	800	4250

Number of working days	22	19	21	21	22	20	125

Costs (Rs.)	
Material	Rs. 100/unit
Inventory holding cost	10/unit/month
Marginal cost of stock out	20/unit/month
Marginal cost of subcontracting	100/unit (200 subcontracting cost less 100 material saving)
Hiring & training cost	50/worker
Layoff cost	100/worker
Labour hours required	4/unit
Straight time cost (first eight hours of the day)	12.50/hour
Overtime cost (time and a half)	18.75/hour
Inventory	
Beginning inventory	200 units
Safety stock required	0%of monthly demand

Calculate the cost of each of the following production strategies:

(a) Produce exactly to meet demand; vary workforce (assuming opening workforce equal to first month's requirements).

(b) Constant workforce; vary inventory and allow shortages only (assume a starting workforce of 10).