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10MBA33

Third Semester MBA Degree Examination, December 2011

Operations Management

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

1 a. What is EOQ? **(03 Marks)**

b. What is BEP? What is the underlying assumption? **(07 Marks)**

c. ABC company plans to sell an article at a local market. The articles are purchased at Rs.5 on the condition that all unsold articles shall be returned. The rent for the space is Rs.2000. The articles will be sold at Rs.9. Determine the number of articles which must be sold :

i) To break even

ii) To earn Rs.400 as profit

iii) If the company sells 750 articles, calculate margin of safety and profit. **(10 Marks)**

2 a. Discuss the concept of "make or buy" decision. **(03 Marks)**

b. A company is investigating the decision whether to make or buy a plastic packaging which is currently being purchased at Rs.7 each. The demand estimates are shown below.

Demand (units)	20000	30000	40000	50000	60000
Chance (%)	10	30	40	15	5

The decision to manufacture inhouse, costs the company an annual fixed cost of Rs.80000 towards renovation and conditioning. Variable costs are estimated at Rs.5 per unit.

Give your decision whether to make or buy. At what quantity is profitable to produce rather than buy? **(07 Marks)**

c. Using cost analysis method select the most advantageous location for setting up a plant.

Particulars	Location A	Location B	Location C
i) Total investment	200000	200000	200000
ii) Total expected sales	250000	300000	250000
iii) Distribution expenses	40000	40000	75000
iv) Raw material expenses	70000	80000	90000
v) Power supply expenses	40000	30000	20000
vi) Wages and salary	20000	25000	20000
vii) Other expenses	25000	40000	30000
viii) Community attitude	Indifferent	Good	Indifferent
ix) Employee housing facilities	Poor	Excellent	Good

(10 Marks)

3 a. What are the types of control charts? List the formulae used in $\overline{X}$ and R charts. **(03 Marks)**

b. What are the different types of forecasting techniques? Explain. **(07 Marks)**

c. A drug manufacturing company has a demand for 10,00,000 bottles. Each empty bottle costs the company Re.1. Empty bottles are supplied by M/s. Glass Tech Ltd. The R.O.L system of stock replenishment is followed. Ordering cost is Rs.12.5 per order and inventory carrying cost is 25 percent of cost per bottle. The demand is constant throughout the year. The lead time is 15 days. Determine :

i) Economic order quantity ii) Lead-time consumption

iii) Re-order level iv) Average inventory **(10 Marks)**

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4 a. What are the steps involved in method study? **(03 Marks)**

b. What are the different types of inventory control techniques? Explain ABC analysis with examples and graph representation. **(07 Marks)**

c. Samples of 4 each were taken for study. The measurement of which were noted as follows :

Sample No.	Measurements in mm			
1	20	22	25	24
2	18	23	20	26
3	24	25	22	20
4	23	21	26	24
5	24	25	24	21

Draw X - $\overline{R}$ chart ($A_2 = 0.73$ for sample size 4) ($D_4 = 2.28$; $D_3 = 0$). Plot graph. **(10 Marks)**

5 a. How ethics play an important role in today's purchasing profession? **(03 Marks)**

b. How many working minutes do you expect, it would take a worker to produce a part for which the time standard is 10 minutes, if the allowance for this work is 25% of the normal and the worker is rated at 80%? **(07 Marks)**

c. A die-casting company uses a moving average to forecast next month's demand. The past actual demand (in units) is shown in below table.

Month	43	44	45	46	47	48	49	50	51
Actual demand	105	106	110	110	114	121	130	128	137

i) Compute a simple 5 month moving average to forecast for month 52.

ii) Compute a weighted 3 month moving average where the weight are highest for the latest months and descend in order of 3, 2, 1. **(10 Marks)**

6 a. What are the various location models available? **(03 Marks)**

b. Explain QFD. **(07 Marks)**

c. Calculate vendor rating for the following :

Suppler's data	X	Y	Z
Quality supplied	100	110	120
Quality accepted	93	98	108
Price of item (Rs.)	5	5.2	4.9
Delivery promised (in weeks)	6	6	6
Actual delivery (in weeks)	7	6.2	6.6

Weightage quality = 70% ; price = 15% ; delivery = 15%. **(10 Marks)**

7 a. What is PDCA? **(03 Marks)**

b. What is six sigma? Explain DMAIC. **(07 Marks)**

c. Discuss in detail the cost of quality. **(10 Marks)**

8 Write short notes on :

a. MBNQA

b. ISO 9000 : 2000

c. FQC tools

d. Juran's quality triology. **(20 Marks)**

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