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**12MBA32** 

## Third Semester MBA Degree Examination, Dec.2014/Jan.2015 **Operations Management**

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any THREE questions from Q.No. 1 to Q.No. 6. 2. Question No. 7 and 8 are compulsory.

a. Distinguish between the corporate strategy and operations strategy.

(03 Marks)

b. Briefly explain the Recent Trends in Production / Operations Management. (07 Marks)

c. ABC Co. manufactures an electronic product. A new model developed requires a new design of a sub unit for this product. ABC Co. is considering three alternatives Viz. i) Whether it should buy the sub unit from a vendor ii) Produce the sub unit using manual assembly system or iii) Produce the sub unit using an automated assembly system based on the data given below:

	DECISION				
DATA	Buy	Produce Using Manual Assembly	Produce using Automated Assembly		
Annual requirements (units)	1,00,000	1,00,000	1,00,000		
Fixed cost per year	-	Rs 2,50,000	Rs 5,00,000		
Variable cost per year	Rs 10/-	Rs 7.5/-	Rs 6/-		

- i) What should ABC company decide? Buy, Produce using manual assembly or produce using automated assembly.
- ii) At what volume would ABC company be indifferent between Manual & Automated Assembly?
- iii) At what volume would ABC company switch over from buying to producing using Manual Assembly? (10 Marks)
- a. State the limitations of Break Even Analysis.

(03 Marks)

- b. Discuss in detail the types of capacity planning and the factors affecting capacity planning. (07 Marks)
- c. Use Exponential smoothing method of forecast and forecast for the week 2 to 7. Assume  $\alpha$  = 0.2. Also calculate SFE and MAD values. Find out the tracking signal and arrive to a conclusion. (10 Marks)

Week	1	2	3	4	5	6
Demand	80	95	75	110	100	90
Forecast	80	?	?	?	?	?

3 a. Comment "Forecasting as a Planning Tool". (03 Marks)

b. Briefly explain forecasting on Time Horizon and draw the differences between them.

c. Jai Hind Industries is planning to set up a new plant. Following is a table showing alternative locations and respective costs (in Rs).

		, ,			
Costs	1	2	3	4	5
Transport / unit	1.00	1.50	1.35	1.65	1.70
Power / unit	1.25	0.65	1.05	1.20	0.75
Land *	50 lakhs	35 lakhs	40 lakhs	20 lakhs	30 lakhs
Building construction *	130 lakh	110 lakh	120 lakh	90 lakh	100 lakh
Equipment Cost/unit	2.50	2.80	2.00	3.00	4.50
Location Taxes etc	10 lakh	8 lakh	12 lakh	9 lakh	20 lakh
Wages (Avg) per unit	0.90	1.00	1.40	0.90	0.80

- \* To be costed @ 15% per annum.
- i) If the volume of production is to be 5,00,000 units/year which is the preferred location?
- ii) If the volume is expanded to 7,00,000 units would the decision change?

(10 Marks)

4 a. What do you mean by Line Balancing?

(03 Marks)

- b. What are the different types of plant layouts? Explain with their features which type of layout is suitable for Hospital and Car Manufacturing Industry. (07 Marks)
- c. Calculate the standard time / article produced from the following data obtained by a work sampling study.

  (10 Marks)

Total number of observations = 3000; Working observations = 2500

No. of units produced during 100 hrs duration = 6000

Proportion of manual labor = 75%; Proportion of machine time = 25%;

Observed rating factor for manual labor = 120%; Total allowances = 15% of normal time.

5 a. What is Aggregate Planning?

(03 Marks)

b. Describe the process of Material Requirement Planning and its objectives.

(07 Marks)

c. Calculate the Vendor Rating for the following:

(10 Marks)

Weightage Quality = 50; Delivery = 25; Price = 15; Response to suggestion = 10.

Supplier's Data	I ga	II	III
Quality supplied	108	90	80
Quantity accepted	102	90	75
Price of item	Rs 1.0	Rs 1.2	Rs 1.1
Delivery Promised	3 weeks	4 weeks	4 weeks
Actual delivery	2.7 weeks	5 weeks	4.4 weeks
Response to suggestion	90%	85%	100%

6 a. What is Master Production Scheduling (MPS)?

(03 Marks)

b. What is Method Study? Explain how method study is conducted in a Manufacturing Firm.

(07 Marks)

c. A company has to select one location out of the five alternatives considered for a new plant.

The Annual Operating costs and other intangible factors are given below for these five locations:

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FACTORS	LOCATION							
	Α	В	C	D	E			
i) Economic factor				-				
Labour costs	1,20,000	1,10,000	1,60,000	85,000	75,000			
Transportation costs	10,000	8,000	7,000	12,000	14,000			
Local Taxes	17,000	20,000	25,000	19,000	17,000			
Cost of power	21,000	29,000	25,000	18,000	23,000			
Other costs	16,000	11,000	12,000	16,000	18,000			
ii) Intangible factor								
Community attitude	Very Good	Fair	Good	Fair	Very Good			
Labor availability	Good	Very Good	Fair	Outstanding	Acceptable			
Quality of Transportation	Fair	Acceptable	Outstanding	Acceptable	Fair			
Quality of Life	Acceptable	Fair	Good	Very Good	Outstanding			

i) On the basis of annual operating costs, which site would you choose?

ii) Devise a method of quantifying the intangible costs and integrate them with the cost data into the overall evaluation. Which is best now? (10 Marks)

7 a. Explain in detail the organization chart for a commercial bank.

(05 Marks)

b. Explain the role of operations manager in an organization.

(05 Marks)

c. Briefly explain the role and influence of IT in production and operations management.

(05 Marks)

- d. In a work sampling study, a mechanic was found to be idle for 20% of the time. Find out the number of observations needed to confirm to the above figures with a confidence level of 95% and a relative error level by  $\pm$  5%. (05 Marks)
- 8 a. Monthly Demand for a product is 2000 units, cost per unit is Rs 12/-. It will cost Rs 3000 to place two orders. The average inventory carrying cost per unit is 8% per year.
  - i) Calculate EOQ. Also calculate reorder level if the lead time is 15 days assuming 1500 units as safety stock.
  - ii) Shall the company accept the discount offer if suppliers gives 5% discount on the single order purchasing? (10 Marks)
  - b. An Ice Cream Parlour offers the following menu for its customers. The Unit selling Price, Variable production cost and expected sales per day are shown in Table.

Item / flavør	S.P / unit	V.C / unit	Expected sales (units)	
Black current	. 30	12	700	
Straw Berry	8.	3	700	
Pista	15	5	500	
Vanila	7	4	500	
Candy	3	2	300	

Fixed costs are Rs 20,000/day. Determine the Break Even sales/day.

(10 Marks)