

January 2015

M. B. A. (Hospital Administration) Examination

Third Semester

FUNDAMENTALS OF OPERATIONS MANAGEMENT

[Time 3 Hours]

[Max. Marks 80]

Note : Attempt any three questions from Section A. Section B is compulsory. Each question of Section A carries 16 marks. Section B carries 32 marks.

## Section A

- (a) Define Production and Operations Management. Explain system concept of production and operations management with input, process and output diagram, giving examples. Explain in brief objectives, functions of operations management.
- (b) What is Productivity? Explain importance of productivity measurement. Discuss different types of productivity. Elaborate factors affecting productivity and methods for improving productivity.

Write respect to facilities planning, explain : DAVVonline.com

- (a) Product and service design with selection criteria.
- (b) Quantitative methods for location of manufacturing and service facility.
- (c) Qualitative methods for facility location.
- (a) Explain with examples the product and process layout. Explain method of load-distance cost matrix while designing a layout.
- (b) Explain with block diagram "CRAFT" technique of designing a layout and discuss its working process giving suitable example.

Elucidate the term 'Capacity-planning'. Explain with examples to increase and decrease the capacity under fluctuating conditions, risk and uncertainty to stabilise the output of:

- (a) A Manufacturing Industry.
- (b) An Educational Institute.
- (c) A Hospital.
- (d) Telecom Industry.

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Write short notes on any three of the following : (with examples)

- 1) APP (Aggregate Production Planning).
- 2) Operations Scheduling and Johnsons Rule Application.
- 3) Types and importance of Control Charts.
- 4) Philosophy of TQM Gurus.
- 5) Quality Circles, Six-Sigma and ISO Concept.
- 6) BPRE (Business-Process-Reengineering).

## Section B

Case 1 : Site location problem

An Industrialist faced with choice among three possible locations and has developed the subjective factor's given below :

(A) Factor's	Site 1	Site 2	Site 3
City-Proximation	Good	OK	OK
Industry-Relation	OK	Excellent	Good
Environmental Factors	Good	Excellent	OK
Government Support	OK	Good	Excellent

## (B) Property-Comparisons?

Factor	Relative Weightage
City Proximity	1 / 6
Industrial Relations	0 / 6
Environmental Factors	2 / 6
Government Support	3 / 6

## (C) The different cost are given below : (in lakhs of rupees)

	Site 1	Site 2	Site 3
Transportation Cost	165	346.5	231
Labour Cost	354.5	288.4	255.5
Energy Cost	231	182.5	197.1
Material Cost	495	629.6	766.5

The industrialist considers objective factors to be more important than subjective factors and allocated a weight of 70% of the objective factors. Use Brown and Gibson Model and suggest the suitable site to the Industrialist. (Make appropriate assumptions)

## (b) Case II : Quality Control Problem

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Construct  $\bar{X}$  and R chart for following data for a screw diameter (inch) :

Given ( $D_4 = 2.282$ ,  $D_3 = 0$  and  $A_2 = 0.729$ ).

Sample Number ↓	Observations →			
	1	2	3	4
1	0.5014	0.5022	0.5009	0.5027
2	0.5021	0.5041	0.5024	0.5020
3	0.5018	0.5026	0.5035	0.5023
4	0.5008	0.5034	0.5024	0.5015
5	0.5041	0.5056	0.5034	0.5047

Determine the controllability of the process checked at any time.