January 2015

Bechelor of Business Administration (BBA) Examination

III Semester

Operations Management

Time : 3 Hours] [Max. Marks : 80

Note : Attempt any three questions from Section A. Each question carries 16 marks. Attempt any two questions from Section B, each carrying 16 marks.

Section A

Q. 1. (a) What do you understand by production / operations management? Explain objectives of production / operations management.

(b) What is scope of production / operations management ? Explain 5 P's of production / operations management.

Q. 2. (a) What are different production systems ? Explain characteristics of production system.

(b) What do you understand by product life cycle ? Explain different stages of product life cycle.

Q. 3. (a) What do you understand by New Product Design ? Explain different steps in New Product Design.

(b) Explain characteristics of services and reasons for growth of service sector.

Q. 4. (a) Explain and differentiate different plant layouts.

(b) What are different factors which influence facility location decision? Explain critically.

Q. 5. (a) What do you understand by control charts ? Explain patterns of control charts.

(b) What is selective control ol inventory ? Explain A-B-C Analysis for inventory management and how it helps in material policy control.

Section B

Q. 6. A company manufactures three products P, Q and R using the same manufacturing facilities arranged in six departments A, B, C, D, E and F. The material handling is done by a forklift. The container can carry 300, 400 and 600 pieces of product P, Q and R respectively. The annual demand for each product is 1200 units. Sequence of operations of product movement are given below :

Product	Movement
P	A → E → B → D → C → F
Q	A → B → C → D → E → F
R	C → B → A → E → D → F

Construct the travel chart.

Q. 7. Complete the Material Requirement plan for item X. Note that this item has an independent demand that necessitate safety stock of 40 units be maintained. Order quantity is 100, lead time 3 week, 50 units are on hand at the begining and 50 units scheduled to receipt on 2nd week.

Week	:	1	2	3	4	5	6
Demand	:	20	20	25	20	20	25
Week	:	7	8	9	10	11	12
Demand	:	20	20	30	25	25	25

Q. 8. A company has conducted cost study of four potential locations for a new plant. The company will finance the plant from bonds bearing 10 percent interest. Determine most suitable location for output volume range of 50,000 to 1,30,000 units per year.

	A	B	C	D
Labour (per unit)	7.5	1.1	8.0	9.0
Plant construction (millions Rs.)	46.0	39.0	40.0	48.0
Material and Equipment (per unit)	4.3	6.0	4.0	5.5
Electricity (per year)	3,00,000	2,60,000	3,00,000	2,80,000
Water (per year)	70,000	60,000	70,000	70,000
Transportation (per unit)	0.2	1.0	1.0	0.5
Taxes (per year)	3,30,000	2,80,000	6,30,000	3,50,000

Q. 9. The following table shows the average and ranges of the spindle diameter in mm for 30 subgroups of 5 items each. For the first 20 samples X bar chart and R chart. Plot the next 10 samples on these charts to see if the process continues "under control" both as to average and range. Find the process capabilities.

Take $d_2 = 2.326$ $D_3 = 0$ $D_4 = 2.11$

X bar	R	X bar	R	X bar	R	X bar	R	X bar	R
45.02	0.375	45.58	0.275	45.32	0.2	45.78	0.275	45.38	0.125
44.95	0.45	45.40	0.475	45.56	0.425	45.64	0.225	45.66	0.350
45.48	0.45	45.66	0.475	45.14	0.250	45.26	0.15	45.46	0.225
45.32	0.15	45.68	0.275	45.62	0.375	45.65	0.20	45.64	0.375
45.28	0.20	45.60	0.275	45.80	0.475	45.62	0.40	45.39	0.650
45.82	0.25	45.02	0.175	45.50	0.20	45.48	0.225	45.29	0.35

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