

MTP_Intermediate_Syllabus2012_Dec2014_Set 1

Paper 9 - Operations Management & Information System

Full Marks: 100

Time allowed-3hrs

This paper contains 3 questions. All questions are compulsory, subject to instruction provided against each question. All workings must form part of your answer. Assumptions, if any, must be clearly indicated.

Question No. 1 : Answer all questions. [20 marks]

1. (a) Explain the term Pacing. 2
- (b) Define Order control. 2
- (c) Define Forecast Error. 2
- (d) State the principles of Total Quality. 2
- (e) A workshop has 30 nos. of identical machines. From the failure pattern of the machines it is calculated that the expected time before failure is 3 months. It costs ₹200 to attend a failed machine and rectify the same. Compute the yearly cost of servicing the broken down machines. 2
- (f) Write a note on Modularity. 2
- (g) Define Representational data models. 2
- (h) List the measures of a JIT system's reliability. 2
- (i) State the basic characteristics of Business Process Re-engineering. 2
- (j) Define Asymmetric Crypto System. 2

Operation Management

Answer any three questions

2. (a) (i) Describe the factors influencing Product Design. 5
- (ii) 'Loss of pride in workmanship exists throughout organization.'- Justify. 3
- (iii) Define the term Competitive Benchmarking. 2
- (iv) H Industries is planning to set up a new plant. Following is a table showing alternative locations and respective costs (in ₹)

Costs	Location	Location	Location	Location	Location
	1	2	3	4	5
Transport, ₹ per unit of production	1.00	1.50	1.35	1.65	1.70
Power, ₹ per unit of production	1.25	0.65	1.05	1.20	0.75
Investment in Land*	50 lakhs	35 lakhs	40 lakhs	20 lakhs	30 Lakhs
Building Construction*	130 lakhs	110 lakhs	120 lakhs	90 lakhs	100 Lakhs
Equipment (capital cost), ₹ per unit of production volume	2.50	2.80	2.00	3.00	4.50
Location Taxes, etc.	10 lakhs	8 lakhs	12 lakhs	9 lakhs	20 lakhs
Wages (average), ₹ per unit of production	0.90	1.00	1.40	0.90	0.80

*to be costed at 15% per annum

If the volume of production is to be 5,00,000 units, what is the preferred location? If the volume is expanded to 7,00,000 units, would the decision change? 6

- (b) (i) Discuss the consequences of Industrial Automation. 4

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- (ii) The Everalert Ltd, which has a satisfactory preventive maintenance system in its plant, has installed a new Hot Air Generator based on electricity instead of fuel oil for drying the finished products. The Hot Air Generator requires periodic shutdown maintenance. If the shutdown is scheduled yearly, the cost of maintenance will be as under:

Maintenance cost	₹ 15,000	₹ 20,000	₹ 25,000
Probability	0.30	0.40	0.30

The costs are expected to be almost linear i.e. if the shutdown is scheduled twice per year, the maintenance cost will be double.

The probability distribution of breakdown cost is estimated as under:

Breakdown costs per annum	₹ 75,000	₹ 80,000	₹ 1,00,000
Shutdown once a year	0.20	0.50	0.30
Shutdown twice a year	0.50	0.30	0.20

Stimulate the total costs - maintenance and breakdown - and recommend whether the shutdown should be resorted once or twice a year.

Random numbers

Maintenance costs (shut down once a year)	27, 44, 22, 32, 97
Maintenance costs (shut down twice a year)	42, 04, 82, 38, 91
Breakdown costs (shut down once a year)	03, 50, 73, 87, 59
Breakdown costs (shut down twice a year)	54, 65, 49, 03, 56

- (c) (i) A company has four zones open and four marketing managers available for assignments. The zones are not equal in sales potentials. It is estimated that a typical marketing manager operating in each zone would bring in the following annual sales:

Zones	East	West	North	South
Sales (₹)	2,40,000	1,92,000	1,44,000	1,20,000

The four marketing managers are also different in ability. It is estimated that working under the same conditions, their yearly sales would be proportionately as under:

Manager	M	N	O	P
	8	7	5	4

If the criterion is maximum expected total sales, find the optimum assignment and the maximum sales.

- (ii) List the programmes included in Preventive Maintenance schedule 12 4

- (d) (i) Draw the network for the following activities and find critical path and total duration of project:

Activity	Dependence	Duration (days)	Activity	Dependence	Duration (Days)
A	-	6	G	C, D	3
B	-	3	H	E	5
C	A	5	I	C, D	5
D	A	4	J	G, H	2
E	B	3	K	F	3
F	B	2	L	J, K	2

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- (ii) Discuss how Bench trending differ from Bench Marking?

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Information System

Answer any two questions.

3. (a) (i) State the advantages of System Development Life Cycle from the perspective of Information System Audit. 4
(ii) Write a note on File Library. 3
(iii) Define Database Administrator. 4
(iv) In a Purchasing Order Processing system, a purchase order record has the following fields:

Field Name	Maximum Field Size
Purchase order number	6
Vendor Code	3
Order-quality	5
Order date	6
Record Deletion maker	1

It is estimated that at any point of time, the outstanding Purchase Order file would have a maximum of 750 outstanding purchase order records in the file (once material is received, the purchase order record is purged from the file.) However, there may be a 15% increase in the total number of records in near future. The file management software also requires an overhead of 20% for minimizing probabilities of collision and overflow conditions. Compute the total file space requirements after allowing for 10% contingency factor on the total. 5

- (b) (i) Describe the term On-line Analytical Processing. 4
(ii) Discuss the importance of Marketing Information System. 4
(iii) 'A successful BPR implementation brings significant improvement to productivity, customer service and bottom -line.' - State the implementation phases. 8
- (c) (i) Describe the composition of the Cyber Appellate Tribunal. 4
(ii) List the main reasons for the spread of E-commerce. 6
(iii) 'According to Section 30 of the Information Technology Act,2000, Certifying Authority shall follow certain procedures in respect of Digital Signatures.' - List the procedures. 4
(iv) Define Configuration. 2