

PAPER – 9–OPERATIONS MANAGEMENT & INFORMATION SYSTEMS

MTP_Intermediate_Syllabus 2012_June2016_Set 2

Paper – 9 – Operations Management & Information Systems

Full Marks: 100

Time Allowed: 3 hours

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.

Section A

I. Answer the following question which is compulsory:

1. Answer all the questions:

[2 × 10 = 20]

- What are the twin objectives of operations Management?
- Define Efficiency?
- List the Applications of PERT?
- What is Monte Carlo Simulation?
- Define quality circle?
- What are the benefits of Preventive Maintenance?
- Identify characteristics of a good quality information?
- What is meta-data?
- Name big five of ERP Market?
- Mention any two reasons for spread of E-commerce?

2. Match List A with List B

[5 × 1 = 5]

List A	List B
a) Load Control	1) Product Mix determination
b) Linear Programming (LP)	2) Transportation Application
c) Vogel's Approximation Method (VAM)	3) Bottleneck Center
d) Information	4) Digital Signature
e) Primary Key	5) Refined data

Section A

II. Answer any three question

[15 × 3 = 45]

- A company planning, to manufacture a household cooking range, has to decide on the location of the plant. Three locations are being considered viz., Patna, Ranchi, and Dhanbad. The fixed costs of the three locations are estimated to be ` 30 lakhs, 50 lakh, and 25 lakh per annum respectively. The variable costs are ` 300, ` 200 and ` 350 per unit respectively. The expected sales price of the cooking range is ` 700 per unit find out the rang of annual production/sales volume for which each location is the most suitable and which one of the three locations is the best location at a production/sales volume of 18,000 units? 8
 - As on August 1, the following jobs are to be processed. Their processing times and due dates are given:

Jobs	A	B	C	D
Processing time (days)	2	6	7	12
Due Date	August 12	August 6	August 4	August 8

Sequence the jobs based on minimum critical ratio.

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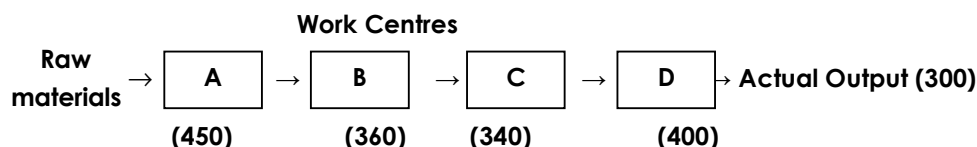
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2. (a) Four jobs can be processed on four different machines, one job on one machine. Resulting profits vary with assignments. They are given below:

Machines					
Jobs	I	42	35	28	21
	II	30	25	20	15
	III	30	25	20	15
	IV	24	20	16	12

Find the optimum assignment of jobs to machines and the corresponding profit? 8

- (b) A firm has four work centers, A, B, C, & D in series with individual capacities in units per day shown in the figure below:



- (a) Identify the bottle neck centre?
 (b) What is the system capacity?
 (c) What is the system efficiency?

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3. (a) Machines K and L, both capable of manufacturing an industrial product, compare as follows:

	Machines K	Machine L
Investment	₹ 60,000	₹ 1,00,000
Interest on borrowed capital	15%	15%
Operating cost (wages, power, etc.) per hour	₹ 12	₹ 10
Production per hour	6 pieces	10 pieces

The factory whose overhead costs are ₹ 1,20,000 works effectively for 4,000 hours in 2 shifts during the year .

- (i) Justify with appropriate calculations which of the two machines you would choose for regular production.
 (ii) If only 4000 piece are to be produced in a year, which machine would give the lower cost per piece.
 (iii) For how many pieces of production per year would the cost of production be same on either machine? (for above comparisons, the cost of material may be excluded as being the same on both machines.)

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- (b) What are the basic functions of maintenance?

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4. (a) Explain basic types of production control?
 (b) State the principles of plant layout?

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Section C

- III. Answer any two questions

[15 × 2 = 30]

1. (a) What is a system? Compare open system and closed system?
 (b) Explain information system infrastructure?
 (c) From the following two relations of X and Y find X – Y

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3	BCA
4	B.Com
5	M.Com
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2. (a) Explain three scheme Architecture with a neat diagram? 10
(b) What are the major features of ERP? 5
3. (a) Write the advantages of E-Commerce? 8
(b) Define a flow chart? Draw a flow chart to find biggest among three numbers? 7