Paper 9 – Operations Management & Information Systems

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Full Marks: 100 **Time allowed: 3 hours**

Section – A

I. Answer the following question which is compulsory:

1. Answer any five of the following questions: [5×2=10]

(a) Define Load Chart.
(b) Define Product Mix.
(c) Define method of Job Evaluation.
(d) Limitations of Preventive maintenance.
(e) What do you mean by DSS?
(f) Name any two models of DBMS.
(g) Define Primary Key.
(h) What kaizen mean?

2. Match the following: [5×1=5]

	List A		List B
A.	Knowledge Base	(i)	Stock Level
B.	Inventory Control	(ii)	Syntax Error
C.	JAVA	(iii)	Expert System
D.	Debugging	(iv)	Authentication of electronic record
E.	Digital Signature	(v)	Programming Language

3. Statement whether the following statements are True / False: [5×1=5]

(a) MRP is a marketing technique.
(b) Online processing and real time processing are same.
(c) Database Approach increasing redundancy.
(d) Method study should precede Work Measurement.
(e) Project cost increase, as the duration of the project increases.

4. Fill in the blanks with one word or two: [5×1=5]

(a) Egronomics is another name for _____.
(b) In linear programming, the word linear establishes certain relationship among _____.
(c) An executive information system is an advanced model of _____.
(d) _____ indicates a sequence of instruction that repeat until a predetermined count or other test is satisfied.
(e) A _____ header is called on attribute.

Section – B

II. Answer any three questions from the following: [15×3=45]

1. (a) Sonar Gold Fields miners at 10th level have an accepted production standard of two trolley-loads an hour in an eight-hour working day. In addition to the mining of the gold-

bearing soil, the miners have to do a few routine jobs such as cleaning, sharpening and maintaining the tools, for which they are paid a wage of ₹9 per hour upto a maximum of two hours per day. The base wage rate of the miners engaged in production/mining job is ₹6.60 per hour.

If Subrato, a miner, produced 18 trolley-loads in addition to performing his routine tasks, what wages should he get at the end of the day? **[6]**

(b) The annual sales of TV sets by a dealer in Delhi are as under:

Year	2012	2013	2014	2015	2016
Sales (thousand units)	3	14	36	4	33

Fit a linear trend equation to the sales figure and estimate the sales for the year 2017. **[9]**

2. (a) A project consists of six activities. Activities P, Q, R run simultaneously. The relationships among the various activities is as follows:

Activity	Immediate successor
P	S
Q	T
R	U

Activity T is the last operation of the project and it is also immediate successor to R and S.
Draw the network of the project. **[7]**

(b) Six salesmen are to be allocated to six sales regions so that the cost of allocation of the job will be minimum. Each salesman is capable of doing the job at different cost in each region, the cost matrix is given below:

		Region					
		I	II	III	IV	V	VI
Salesmen	A	15	35	0	25	10	45
	B	40	5	45	20	15	20
	C	25	60	10	65	25	10
	D	30	70	40	5	40	50
	F	10	25	30	40	50	15

(i) Find the allocation to give minimum cost what is the cost?
(ii) Now suppose the above table gives earning of each salesman at each region.

How can you find an allocation so that the earning will be maximum? Determine the solution with optimum earning. **[8]**

3. (a) Calculate the number of the units expected to fail in a year and the mean time between failure from the following:

Testing time	= 100 hours
Samples tested	= 50 units
Failures	= 2 units
Average usage	= 2 hours / day
Total sales in the year	= 500 units

[6]

(b) The data on the operating costs per year and resale prices of equipment A whose purchase price is ₹10,000 are given here:

Year	1	2	3	4	5	6	7
Operating Cost (₹)	1500	1900	2300	2900	3600	4500	5500
Resale Value (₹)	5000	2500	1250	600	400	400	400

(i) What is the optimum period for replacement?

(ii) When equipment A is 2 years old, equipment B, which is a new model for the same usage, is available. The optimum period for replacement is 4 years with an average cost of ₹3600. should we change equipment A with that of B? If so, when?

4. (a) List the benefits of Benchmarking? **[9]**

(b) List the various steps in maintenance planning. **[7]**

Section – C

III. Answer any two question form the following: [15×2=30]

1. (a) State the main reasons for the spread of E-commerce. **[8]**

(b) What are major features of ERP? **[7]**

2. (a) Explain characteristics of an information system. **[8]**

(b) What are the basic features of and MIS? **[7]**

3. (a) Explain about EDI. **[7]**

(b) State two distinctive features of each of the following technologies used in a business Situation: **[2×4=8]**

(i) Management Information System
(ii) Decision Support System
(iii) Executive Information System
(iv) Expert Systems.