Mock Test Paper
GROUP- II
(SYLLABUS 2008)
Paper 9 - Operations Management & Information Systems

Time allowed: 3 hrs   Full Marks: 100
Section I: Operation Management

Answer Question No. 1 which is compulsory and any
Two questions from the rest, under Section I.

Working Notes should form part of the answer.

1. (a) Fill in the blanks with appropriate words: [4]
   (i) A jig contains a device for guiding the ------------.
   (ii) ----------- is a technique for determining the quantity and timing for the acquisition of dependent demand items needed to satisfy master production schedule requirements
   (iii) To evaluate the work done by preventive maintenance,---------- is derived at from the total time of stoppage of the machine for scheduled and unscheduled maintenance work.
   (iv) The adoption of JIT normally requires to improve ------------.

   (b) Indicate whether the following statements are True/False   [4]

   (i)   Decisions under uncertainty are not always obvious. (True)
   (ii) With increase in lot size the set up cost per unit decreases, whereas the inventory carrying cost increases. (True)
   (iii) Production Planning & Control techniques include "Machine Loading"(False)
   (iv) In general, long range forecasting is more useful in production planning.(False)

   (c) What do following abbreviations stand for: [6]
   (i)   WBS
   (ii) COPQ
   (iii) FMEA
   (iv) ABFS
   (v)   CPOF
   (vi) DNC

2. (a) The faculty in an engineering institute is planned to rise to strength of 50 staff members and then to remain at that level. The wastage of recruits depends upon their length of service and is as follows:

Year	1	2	3	4	5	6	7	8	9	10
Total %age who left upto the end of year	5	35	56	65	70	76	80	86	95	100

   (i) Find the number of staff members to be recruited every year.
   (ii) If there are seven posts of Head of Department for which, length of service is the only criterion of promotion, what will be the average length of service after which a new entrant should expect promotion?   [6+4]

(b) A public transport system is experiencing the following number of breakdowns for months over the past 2 years in their new fleet of vehicles:

Number of breakdowns	0	1	2	3	4
Number of months this occurred	2	6	8	5	1

Each breakdown costs the firm an average of ₹2800. For a cost of ₹1500 per month, preventive maintenance can be carried out to limit the breakdowns to an average of one per month. Which policy is suitable for the firm?   **[5]**

(c) Write a note on Problem Formulation under Linear Programming.   **[3]**

3. (a) A manager has to decide about the number of machines to be purchased. He has three options i.e. purchasing one, or two, or three machines. The data are given below:

Number of machines	Annual Fixed cost (₹)	Corresponding range of output (units)
1	10,000	0 to 400
2	12,000	401 to 700
3	20,000	701 to 1000

Variable cost is ₹ 20 and revenue is ₹ 40 per unit.

(i)   Determine the break-even point for each range.

(ii) If projected demand is between 600 and 750 units, how many machines should the manager purchase?   **[3+4]**

(b) Draw the network for the following activities and find critical path and total duration of project: **[6]**

Activity	Duration (months)	Activity	Duration (months)
1-2	2	4-7	3
1-3	2	5-8	1
1-4	1	6-8	4
2-5	4	7-9	5
3-6	5	8-9	3
3-7	8		

(c) What are the various factors to be considered for deciding on automation alternatives?   **[5]**

4. (a) The Accounts Manager of Explore Project has studied his varying monthly cash flows and has arrived at the probabilities of cash inflows and outgo as detailed below:

Cash Inflow (₹)	Probabilities	Cash Outgo(₹)	Probabilities
14,000	0.35	11,000	0.15
15,000	0.20	12,000	0.25
16,000	0.15	13,000	0.30
17,000	0.14	14,000	0.15
18,000	0.11	15,000	0.11
19,000	0.05	17,000	0.04

The Manager, at the beginning of the year has ₹2000 in bank.

Simulate his sales and expenses over a financial year (April to March) using the following two series of random numbers.

Assume that the Manager can avail of temporary overdraft facilities to cover any cash shortage.

How much money does the Accounts Manager has at the end of the year?

Series-I: 34, 84, 38, 82, 36, 92, 73, 91, 63, 29, 27, 26

Series-II: 96, 57, 99, 84, 51, 29, 41, 11, 66, 30, 41, 80   **[12]**

(b) What are the factors affecting the process planning? [3]

(c) From the following financial data classify the costs as prevention, appraisal, internal failure or external failure. [3]

	(₹)
Sales	10,00,000
Scrap	3,00,000
Rework	4,00,000
Product inspection	1,25,000
Product Warranty	6,00,000
Quality training	80,000
Materials inspection	40,000

Section II : Information Systems
Answer Question No. 5 which is compulsory and
Any two questions from the rest.

5. (a) Fill in the blanks with appropriate words: [6]
   (i) --------------- is a process of continuous checking of possible encroachment of virus in a machine.
   (ii) In Control Unit of CPU, the summation of instruction time and execution time is called ---------- time.
   (iii) ------------------ is the reverse process to convert the scrambled form of text into readable text.
   (iv) A record is identified by its -------------.
   (v) --------------- basically sends a mail to the e-mail address of the receiver.
   (vi) ------------------ is extracting of data from multiple data sources by way of interactive and analytical software tools.

   (b) Expand the following abbreviations: [4]
   (i) SRAM
   (ii) EIS
   (iii) GIGO
   (iv) CODASYL
   (c) Indicate whether the following statements are True/False. [4]
   (i) The basic aim of normalization is to ensure that the same data are stored in more than one place.
   (ii) DBMS reduces data redundancy.
   (iii) In fact, the "effector" is another name for Management Information System.
   (iv) Oracle is a programming language.

6. (a) ABC Ltd. is considering two options to acquire software for computerizing one of its important functional areas. The options are:
   (i) Buying the software package available in the market
   (ii) Engaging software industries to design the software [3+3]
   (b) Name the different stages of the System Development Life Cycle. [2]
   (c) How is a "Computer Virus "different from 'Bug'? Mention the preventive measures needed to ensure that Computer systems are free from Virus. [2+2]
   (d) What are the functions of an Operating System? [6]

7. (a) What are the salient features of LAN? [4]

(b) What is electronic cash? What are the steps involved in transferring money between parties? [1+4]

(c) Write short note on Search Engines [3]

(d) What are the impediments in introducing E-commerce? [4]

(e) Define Data Mart. [2]

8. (a) A company having multiple offices all over India, has decided to install an ERP package for its financial accounting in all offices. The company has considered a centralized architecture in which the database will be stored centrally in the Corporate Office and all offices will access it via VSAT connectivity.

What are the advantages and disadvantages of the architecture? [3+1]

(b) Write a short note on Test Deck. [2]

(c) What is Parity Checking? [3]

(d) The impact of Control System on human behavior can be better explained by Budgetary Control. Explain [6]

(e) What are the features of High Level Languages? [3]