Paper 9 - Operations Management & Information Systems

Time allowed-3hrs   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:**   **[7 × 1]**

   (i) Statistical analysis is used to determine the optimum policy of ---------- maintenance.

   (ii) In linear programming, the word "linear" establishes certain relationships among different ------------.

   (iii) ----------- layout is used for mass production.

   (iv) Method study should precede ------------.

   (v) ------------- is a project to expand the present capacity of the plant.

   (vi) ------------- process can be either mechanical or chemical.

   (vii)------------ Conveyors are used for loading cement into bags in a cement plant.

   (b) Expand the following abbreviations: **[7 × 1]**

   (i)   BOOT

   (ii)   SPM

   (iii) LTPD

   (iv) TOC

   (v)   EMQ

   (vi) CWQC

   (vii) LD

2. **(a) ORTIS INVESTMENT MANAGEMENT LTD. (a Mutual Fund company) has ₹ 40 lakh available for investment in Government Bonds, Blue Chip Stocks, Speculative Stocks and Short Term Deposits. The annual expected return and risk factor are given below:**

Type of investment	Annual Expected	Risk Factor
Return (%)	(0 to 100)	
Government bonds	12	12
Blue chip Stocks	20	24
Speculative Stocks	25	50
Short terms Deposits	8	5

The Company (OIML) is required to keep at least ₹ 5 lakh in short term deposits and not to exceed average risk factor of 40. Speculative stocks must be at most 25% of the total amount invested.

Required:

How should ORTIS INVESTMENT MANAGEMENT LTD. invest the funds so as to maximize its total expected Annual Return?

Formulate this as a Linear Programming Problem. You are not required to solve the L.P.P.

[10]

(b) Explain the need for acceptance sampling. [2]

(c) Write short note on Systematic Layout Planning. [6]

3. (a) A company trading in motor vehicles spares wishes to determine the level of stock it should carry for the item in its range. Demand is not certain and replenishment of stock takes 3 days. For one item X, the following information is obtained:

Demand (Units/day)	1	2	3	4	5
Probability	0.10	0.20	0.30	0.30	0.10

Each time an order is placed, the company incurs an ordering cost of ₹ 20 per order. The company also incurs carrying cost of ₹ 2.50 per unit per day. The inventory carrying cost is calculated on the basis of average stock.

The manager of the company wishes to compare two options for his inventory decision:

A. Order 12 units when the inventory at the beginning of the day plus order outstanding is less than 12 units.

B. Order 10 units when the inventory at the beginning of the day plus order outstanding is less than 10 units.

Currently (on the first day) the company has a stock of 17 units. The sequence of random number to be used is 08, 91, 25, 18, 40, 27, 85, 75, 32, and 52. You are required to carry out a simulation run over a period 10 days, recommended which option the manager should choose. [12]

(b) "JIT manufacturing includes many activities." Briefly discuss the activities. [6]

4. (a) Machines X and Y are both capable of manufacturing a product. They compare as follows:

Particulars	Machine X	Machine Y
Investment	₹ 1,00,000	₹ 1,60,000
Interest on capital invested	15% per annum	15% per annum
Hourly charges (wages + power)	₹ 10	₹ 8
No. of pieces produced per hour	5	8
Annual operating hours	2000	2000

(i) Which machine will have the lower cost per unit of output, if run for the whole year?

(ii) If only 4000 pieces are to be produced in a year, which machine would have the lower cost per piece? **[4+4]**

(b) State the benefits of Work Study. **[4]**

(c) What is Quality Control? Mention six objectives of Quality Control. **[6]**

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: **[7 × 1]**

(i) ---------- is an in-house version of Internet.

(ii)----------- is a process of assessing risk and reducing it to an acceptable level.

(iii) Check digit is to ensure ---------- of code.

(iv) In a database, duplicate data are eliminated and thus ------------- is controlled.

(v) ------------ means loading operating system in computer after switching on the power.

(vi) --------------- is a process of continuous checking of possible encroachment of virus in a machine.

(vii) Oracle is based on a concept of --------- Technology.

(b) Expand the following abbreviations: **[7 × 1]**

(i) SET

(ii) FTP

(iii) DML

(iv) ALGOL

(v) ISAM

(vi) ASCII

(vii) EEPROM

6. (a) Write a short note on Data Dictionary. **[4]**

(b) Discuss the different types of implementation strategies. **[4]**

(c) Write down the characteristics of usefulness of information. **[4]**

(d) Discuss in brief Master Data Management of an ERP System. **[2]**

(e) What does configuration of an ERP system deals with? [2]

(f) What are the components of Business Information System? [2]

7. (a) Briefly describe any four program design tools. [8]

(b) What are the advantages of Sequential File Organisation? [3]

(c) What are the different categories of tests that a programmer typically performs on a program unit? [5]

(d) What is the need for EBCDIC Code? [2]

8. (a) Write down the objectives of The Information Technology Act, 2000. [6]

(b) What does Section 72 of The Information Technology Amendment Act 2008 deals with?

[2]

(c) Define Electronic Financial Transaction (EFT). [3]

(d) Define Extranet. [2]

(e) One of the important factors for the success for MIS is the quality of software. List out the criteria, which the software must fulfill for the basis of selection apart from meeting the user specific functional specifications? [3]

(f) Define Biometric Security. [2]