PAPER 9 - OPERATIONS MANAGEMENT & INFORMATION SYSTEM

The following table lists the learning objectives and the verbs that appear in the syllabus learning aims and examination questions:

	Learning objectives	Verbs used	Definition
LEVEL B	KNOWLEDGE What you are expected to know	List	Make a list of
		State	Express, fully or clearly, the details/facts
		Define	Give the exact meaning of
	COMPREHENSION What you are expected to understand	Describe	Communicate the key features of
		Distinguish	Highlight the differences between
		Explain	Make clear or intelligible/ state the meaning or purpose of
		Identity	Recognize, establish or select after consideration
		Illustrate	Use an example to describe or explain something
	APPLICATION How you are expected to apply your knowledge	Apply	Put to practical use
		Calculate	Ascertain or reckon mathematically
		Demonstrate	Prove with certainty or exhibit by practical means
		Prepare	Make or get ready for use
		Reconcile	Make or prove consistent/ compatible
		Solve	Find an answer to
		Tabulate	Arrange in a table
	ANALYSIS How you are expected to analyse the detail of what you have learned	Analyse	Examine in detail the structure of
		Categorise	Place into a defined class or division
		Compare and contrast	Show the similarities and/or differences between
		Construct	Build up or compile
		Prioritise	Place in order of priority or sequence for action
		Produce	Create or bring into existence

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 indicted.

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

1. (a) Calculate EBQ from the details: Monthly demand -4000 units, setting up costs per batch - ₹200, cost of manufacture per unit - ₹60, rate of interest – 10% p.a.
(b) Explain Total Productivity.
(c) State the three levels of quality.
(d) Describe Pragmatic JIT.
(e) List the disadvantages of Vertical Integration.
(f) Describe MDD as a sequencing rule for single facility.
(g) Explain Virtual Reality.
(h) Describe DDP.
(i) List the shortcomings of SDLC.
(j) "Quality can be viewed as hinging on two major factors." State the factors.

[10 × 2=20]

Answer:

1. (a) 1. (a) $EBQ = \sqrt{\frac{2 \times \text{Annual Demand} \times \text{Set-up Cost}}{\text{Unit Cost} \times \text{Inventory Carrying Cost per unit per year}}}$

$$EBQ = \sqrt{\frac{2 \times 4000 \times 12 \times 200}{60 \times 10\%}}$$

$$= 1789 \text{ units}$$

(b) Total Productivity:
Here, productivity is calculated with respect to the total cost or the total finances committed, instead of one input, as given below:

$$\text{Productivity} = \frac{\text{Value added}}{\text{Total factor cost}} = \frac{\text{Value of gross output}}{\text{Total value of inputs.}}$$

The total factor productivity (TFP) is a measure of the overall changes in production efficiency.

(c) Three levels of quality

1	Organisation level	Meeting external customer requirements
2	Process level	Meeting the needs of internal customers
3	Performer level (Job level or task design level	Meeting the requirements of accuracy, completeness innovation, timeliness and cost.

(d) Pragmatic JIT consist of a set of techniques, some fairly technical, that relate to machine change-overs, lay-out design, product simplification, quality training, equipment maintenance and so on.

(e) Disadvantages of vertical integration are:
- Not attractive for low volumes.
- High capital investment and operating costs.
- Less ability to react more quickly to changes in customer demands, competitive actions and new techniques.

(f) Meeting due dates of customers or down or stream operations. Here we start with earliest due date first. Due date where referring to the entire job and OPNDD where referring to next operation.

(g) Virtual Reality
Virtual reality is an artificial environment that is created with software and presented to the user in such a way that the user suspends belief and accepts it as a real environment. This tool is being though of to be useful in advertising in web-sites for an effective e-commerce business.

(h) DDP stands for "Distributed Data Processing".
The Distributed Systems is the opposite to the centralized system:
(i) Computers installed at different sites
(ii) Each of them performing independent data processing
(iii) Each computer is specialized to perform a range of activities (marketing, promotion……..)

(i) Some of the shortcomings of the SDLC are as follows:
(i) The development team may find it cumbersome,
(ii) The users may find that the end product is not visible for a long time,
(iii) It may not be suitable for small and medium sized projects.

(j) Quality can be viewed as hinging on two major factors:
(i) Satisfying customer expectations regarding the attributes and performance of the product.
(ii) Ensuring that the technical aspects of the product's design conform to the manufacture's standards.

Operations Management

Answer any three questions

2. (a) (i) List the basic steps in Strategic Bench trending. [4]

(ii) Patients arriving at a village dispensary are treated by a doctor on a first – come-first- served basis.

The inter-arrival time of the patients is known to be uniformly distributed between 0 and 80 minutes, while their service time is known to be uniformly distributed between 15 and 40 minutes.The starting time is 8 .00 A.M.

It is desired to simulate the system and determine the average time a patient has to be in the getting service and the proportion of time the doctor would be idle.
Carry out the simulation using the following sequences of random numbers. The numbers have been selected between 00 and 80 to estimate inter-arrival times and between 15 and 40 to estimate the service times required by the patients.

Series 1	07	21	12	80	08	03	32	65	43	74
Series 2	23	37	16	28	30	18	25	24	19	21

[9]

(iii) State the elements of lean production. [3]

(b) (i) A department of a company has to process a large number of components/month. The process equipment time required is 30 minutes/component and the manual skilled manpower required is 10 minutes/component. The following additional data is available:

	Availability/month	Efficiency of utilization
Equipment hour	400	80%
Skilled manpower hours	250	65%

What is the maximum possible production under the current conditions? [4]

(ii) Five swimmers are eligible to compete in a relay team which is to consist of four swimmers swimming four different swimming styles: back stroke, breast stroke, free style and butterfly. The time taken by the five swimmers Anand, Bhaskar, Chandru, Dorai and Easwar - to cover a distance of 100 meters in various swimming styles are given below in minutes: seconds. Anand swims the back stroke in 1:09, breast stroke in 1:15 and has never competed in free style or butterfly. Bhaskar is a free style specialist averaging 1.01 for the 100 meters but can also swim breast stroke in 1:16 and butterfly in 1:20. Chandru swims all four styles - back 1:10; butterfly 1:12, free style 1:05 and breast stroke 1:20. Dorai swims only the butterfly 1:11 while Easwar swims back stroke 1:20, the breast stroke 1:16, the free style 1:06 and the butterfly 1:10. Which swimmers should be assigned to which swimming style? Who will not be in relay? [12]

(c) (i) An electric company which generates and distributes electricity conducted a study on the life of poles. The repatriate life data are given in the following table: [6]

Life data of electric poles

Year after installation:	1	2	3	4	5	6	7	8	9	10
Percentage poles failing:	1	2	3	5	7	12	20	30	16	4

- **If the company now installs 5,000 poles and follows a policy of replacing poles only when they fail, how many poles are expected to be replaced each year during the next ten years?**
  To simplify the computation assume that failures occur and replacements are made only at the end of a year.
- **If the cost of replacing individually is ₹ 160 per pole and if we have a common group replacement policy it costs ₹ 80 per pole, find out the optimal period for group replacement.**

(ii) A company produces two types of pen, say A and B. Pen A is a superior quality and Pen B is a lower quality. Profit on pens A and B is ₹ 5 and ₹3 per pen respectively. Raw material required for each pen A is twice as that for pen B. The supply of raw material is

sufficient only for 1,000 pens of type per day. Pen A requires a special clip and only 400 such clips are available per day. For Pen B, only 700 clips are available per day. Find graphically the product mix , so that the company can make maximum profit. [6]

(iii) What are the advantages of KAIZEN technique? [4]

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

Activity	Duration (months)	Activity	Duration (months)
1-2	2.5	4-5	2.0
2-3	2.5	5-6	3.0
2-4	1.5	6-7	1.5
3-4	1.0	5-7	1.5
3-5	1.0		

[8]

(ii) The demand for computers has been rising rapidly since 2005. The following data are for one of the metropolitan cities. Fit a quadratic curve to the data and forecast the demand during years 2014, 2015, 2016, 2017 and 2018. [8]

Year	Demand ('000)
2005	25
2006	35
2007	50
2008	65
2009	85
2010	115
2011	150
2012	205
2013	285

Answer:

2. (a) (i) The Steps in strategic bench trending are as follows:
   (a) Firstly the market is defined by determining its size, customer preferences, competitors and relative business position of the company within the market.
   (b) The industry direction, technology shifts, geopolitical changes, customer changes and potential threats from outside sources are assessed.
   (c) The strongest current and potential competitors are then determined by evaluating the trends in industry.
   (d) Data on preference of competitors is gathered and the current and future performance of the unit is compared with that of its competitor.
   (e) A performance baseline for the business units, is then established and the relative performance of current and projected competition is estimated.
   (f) A set of initiatives which form the basis of an improvement plan are identified to maintain strengths while reducing projected gaps.

(ii)

Simulation of data at a village dispensary							
No. of patients	Inter arrival	Entry time to	Service time	Service start	End time	Waiting time of	Idle time of

	time Random No.(mins)	queue(hrs)	random no. (mins)	time (hrs)	(hrs)	patient (mins)	doctor (mins)
1	07	8.07	23	8.07	8.30	-	07
2	21	8.28	37	8.30	9.07	2	-
3	12	8.40	16	9.07	9.23	27	-
4	80	10.00	28	10.00	10.28	-	37
5	08	10.08	30	10.28	10.58	20	-
6	03	10.11	18	10.58	11.16	47	-
7	32	10.43	25	11.16	11.41	33	-
8	65	11.48	34	11.48	12.22	-	07
9	43	12.31	19	12.31	12.50	-	09
10	74	01.45	21	01.45	02.06	-	55
						129	115

Average waiting time of patient = 129/10=12.9 mins
Average waiting time of doctor = 115/10= 11.5 mins

(iii) The elements of lean production are:

(a) To consider the organization in terms of a supply chain of value streams that extends from suppliers of raw materials, through transformation to the final customer.

(b) To organize workers in teams and to have everyone in the organization conscious of his or her work.

(c) To produce products of perfect quality and to have continuous quality improvement as a goal.

(d) To organize the operation by product or cellular manufacturing, rather than using a functional or process layout.

(e) To operate the facility in a just-in-time mode.

(b) (i) Calculation of Maximum Production Possible

From Equipment Hour
Availability = 400 hours
Efficiency = 80%

∴ Actual Usage of hours = 400 x 80% = 320 hours

$$\therefore \text{Maximum Production possible} = \frac{320 \times 60}{30} = 640 \text{ components}$$

From Skilled Man Power
Availability = 250 hours
Efficiency = 65%
∴ Actual Usage of hours = 250 x 65% = 162.5 hours

$$\therefore \text{Maximum Production Possible} = \frac{162.50 \times 60}{10} = 975 \text{ Components}$$

∴ Maximum Production Possible with Combination of Equipment hour and skilled Man power = 640 Components (Lower of the above two)

(ii)

	Back Stroke	Breast Stroke	Free style	Butterfly	Dummy
Anand	69	75	-	-	0
Bhaskar	-	76	61	80	0
Chandru	70	80	65	72	0
Dorai	-	-	-	71	0
Easwar	80	76	66	70	0

Row reduction is not required as there is zero in each row.

Column reduction

	Back Stroke	Breast Stroke	Free style	Butterfly	Dummy
Anand	0	0	-	-	0
Bhaskar	-	1	0	10	0
Chandru	1	5	4	2	0
Dorai	-	-	-	1	0
Easwar	11	1	5	0	0

Minimum lines to cut zeros

	Back Stroke	Breast Stroke	Free style	Butterfly	Dummy
Anand	~~0~~	~~0~~	-	-	~~0~~
Bhaskar	~~-~~	~~1~~	~~0~~	~~10~~	~~0~~
Chandru	1	5	4	2	0
Dorai	-	-	-	1	0
Easwar	~~11~~	~~1~~	~~5~~	~~0~~	~~0~~

As the minimum number of lines are not equal to order of matrix, let's take step to increase the number of zeros.

	Back Stroke	Breast Stroke	Free style	Butterfly	Dummy
Anand	0	0	-	-	1
Bhaskar	-	1	0	10	1
Chandru	0	4	3	1	0
Dorai	-	-	-	0	0
Easwar	11	1	5	0	1

Minimum lines to cut zeros

	Back Stroke	Breast Stroke	Free style	Butterfly	Dummy
Anand	0	0	-	-	1
Bhaskar	-	1	0	10	1
Chandru	0	4	3	1	0
Dorai	-	-	-	0	0
Easwar	11	1	5	0	1

As the minimum number of lines are equal to order of matrix, optimal assignment should be made

Optimal Assignment

	Back Stroke	Breast Stroke	Free style	Butterfly	Dummy
Anand	~~0~~	[0]	~~-~~	~~-~~	~~1~~
Bhaskar	-	1	[0]	10	1
Chandru	~~[0]~~	~~4~~	~~3~~	~~1~~	~~0~~
Dorai	~~-~~	~~-~~	~~-~~	~~0~~	~~[0]~~
Easwar	11	1	5	[0]	1

Swimmer	Activity assigned	Duration
Anand	Breast stroke	75
Bhaskar	Free style	61
Chandru	Back stroke	70
Dorai	Dummy	0
Easwar	Butterfly	70
Total		276 seconds

(c) (i) Chart showing Optimal Replacement Period

Average life of the pole - 1 x 0.01 + 2 x 0.02 + 3 x 0.03 + 4 x 0.05 + 5 x 0.07 + 6 x 0.12 + 7 x 0.20 + 8 x 0.3 + 9 x 0.16 + 10 x 0.04 = 7.05

No. of poles to be replaced every year = $\frac{5000}{7.05}$ = 709

Average yearly cost on individual replacement = 709 x ₹160 = ₹ 1,13,440.

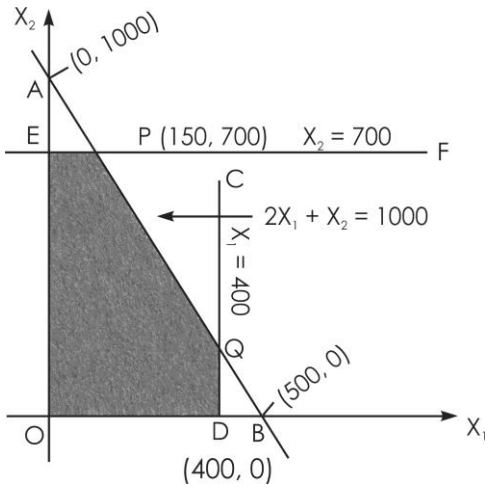
Group Replacement: Initial Cost = 5,000 x ₹80 = ₹4,00,000.

Year	No. of poles to be replaced	Yearly cost (₹)	Cumulative Cost (₹)	Total cost (₹)	Average Annual Cost (₹)
1	5,000 x 0.01 = 50	8,000	8,000	4,08,000	4,08,000
2	5,000 x 0.02 + 50 x .01 = 101	16,160	24,160	4,24,160	2,12,080
3	5,000 x 0.03 + 50 x 0.02 + 101 x	24,320	48,480	4,48,480	1,49,493

	0.01 = 152				
4	5,000 x 0.05 + 50 x 0.03 + 101 x 0.02 + 152 x 0.01 = 256	40,960	89,440	4,89,440	1,22,360
5	5,000 x 0.07 + 50 x 0.05 + 101 x 0.03 + 152 x 0.02 + 256 x 0.01 = 362	57,920	1,47,360	5,47,360	1,09,472
6	5,000 x 1.2 + 50 x 0.07 + 101 x 0.05 + 152 x 0.03 + 256 x 0.02 + 362 x 0.01 = 6023	9,63,680	11,11,040	15,11,040	2,51,840

Optimal replacement at the end of the 5th year.

(ii) The appropriate mathematical formulation of the problem is:
Maximize $Z = 5x_1 + 3x_2$
Subject to the constraints:
$2x_1 + x_2 \leq 1{,}000$;
$0 \leq x_1 \leq 400$;
$0 \leq x_2 \leq 700$
Where x_1 = number of pens of type A and
x_2 = number of pen of type B.
the set of points (x_1, x_2),
$x_1 \geq 0$ and $x_2 \geq 0$
Satisfying all the three constraints, constitutes the feasible region ODQPE as is shown in the adjoining figure

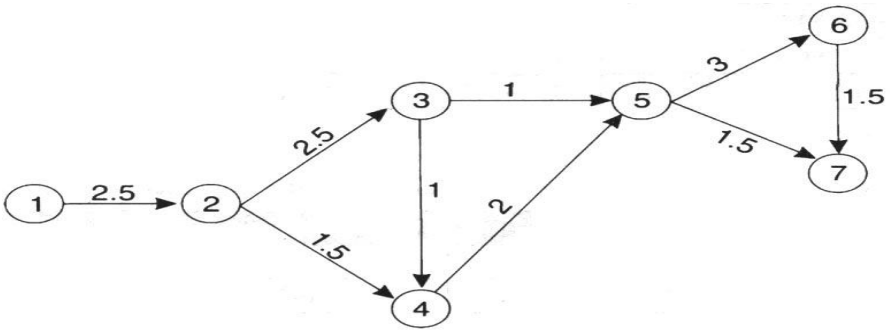


The co-ordinates of the vertices of convex region are:
O = (0, 0), D = (400, 0), Q = (200, 400), P = (150, 700) and E = (0, 700)
It is evident from the above, that the optimal (maximum) value of Z is ₹ 2850 which occurs at the point P (150, 700).
Hence, 150 pens of type A and 700 pens of type B should be produced in order to have the maximum profit of ₹ (150 × 5 + 700 × 3), i.e., ₹ 2850.

(iii) The advantages of KAIZEN are as follows:

- The first and foremost benefit of KAIZEN is that it brings about attitudinal changes among employees towards improvements of their routine work. Hence it increases the productivity and a new work culture is created in the organization.
- Once the culture is transformed, the way gets cleared for introducing other productivity improvement systems like JIT, kaban etc. obviously leading to productivity improvement.
- KAIZEN system reduces resistance to change.
- Ownership of work improves in KAIZEN environment. It is the inner voice of the employees that drives them to make the improvements, rather than the orders given down through the hierarchy.

(d) (i)



Paths	Duration
1-2-3-5-6-7	2.5+2.5+1+3+1.5 = 10.5
1-2-3-5-7	2.5+2.5+1+1.5 = 7.50
1-2-3-4-5-6-7	2.5+2.5+1+2+3+1.5 = 12.5 (Critical path)
1-2-3-4-5-7	2.5+2.5+1+2+1.5 = 9.5
1-2-4-5-7	2.5+1.5+2+1.5 = 7.5
1-2-4-5-6-7	2.5+1.5+2+3+1.5 = 10.5

(ii) Let us call demand as Y and years as X. Let us arrange X so that the middle year is zero so that $\Sigma X = 0$.

With this we have $\Sigma X = 0$ and $\Sigma X^3 = 0$

The normal equations for the quadratic curve are

$\Sigma Y = a_0 N + a_2 \Sigma X^2$ (1)

$\Sigma XY = a_1 \Sigma X^2$ (2)

$\Sigma X^2 Y = a_0 \Sigma X^2 + a_2 \Sigma X^4$ (3)

In order to solve these, the following table is constructed:

Year	X	Y	X^2	X^4	XY	X^2Y
2005	-4	25	16	256	-100	400
2006	-3	35	9	81	-105	315
2007	-2	50	4	16	-100	200
2008	-1	65	1	1	-65	65
2009	0	85	0	0	0	0
2010	1	115	1	1	115	115
2011	2	150	4	16	300	600
2012	3	205	9	81	615	1845

2013	4	285	16	256	1140	4560
	0	1015	60	708	1800	8100

Therefore from Eq. (2)

$1800 = a_1 (60)$ or $a_1 = \frac{1800}{60} = 30$

From Eq. (1) and (3)

$1015 = a_0 (9) + a_2 (60)$ and $8100 = a_0 (60) + a_2 (708)$

Solving these equations, we get

$A_0 = 83.92$ and $a_2 = 4.33$

The equation for the parabolic (quadratic) curve is therefore

$Y = 83.92 + 30 X + 4.33 X^2$

Using the above equation, the forecast for 2014 is

$Y = 83.92 + 30(5) + 4.33 (5)^2 = 342.17$

The similarly, forecasts for years 2015, 2016, 2017 and 2018 are

$Y_{2015} = 83.92 + 30 (6) + 4.33 (6)^2 = 419.80$

$Y_{2016} = 83.92 + 30 (7) + 4.33 (7)^2 = 506.09$

$Y_{2017} = 83.92 + 30 (8) + 4.33 (8)^2 = 601.04$

$Y_{2018} = 83.92 + 30 (9) + 4.33 (9)^2 = 704.65$

Information System

Answer any two questions.

3. (a) (i) State the advantages of Computer Based Information System (CBIS). [4]

(ii) State the concept of Search Engines. [4]

(iii) Describe the importance of Marketing Information System. [5]

(iv) List the characteristics of good quality information. [3]

(b) (i) Discuss about the impediments in introducing E-commerce. [4]

(ii) In a payroll system, the employee master file is being designed to have records of fixed length consisting of the following fields:

Field Name	Maximum field size
Employee Number	5
Employee Name	36
Designation	10
Date of birth	5
Date of joining	5
Selection code	5
Qualification	20
Training codes	10
Scale of pay	10

The Employee Master has 2000 employee records presently. Once an employee leaves, his record is deleted. However, it is estimated that there may be fresh recruitment upto 15% of present strength in future. The file management software also requires an overhead of 20% for minimizing probabilities of collision and overflow

conditions. Compute the total file space requirement after allowing for 10% contingency factor on total. [6]

(iii) "There can be many specialists in a database environment". Name at least four such specialists and mention the duties of any two of them who may be considered essential. [2+4]

(c) (i) State the important activities related to setting up of base in ERP System. [6]
(ii) Explain the Cash Management module of an ERP system. [2]
(iii) Define Electronic Financial Transaction(EFT). [2]
(iv) State where the Information Technology Act, 2000 is not applicable. [6]

Answer:

3. (a) (i) The advantages of CBIS are:
- Reduction in cost of record maintenance
- Improvement in the efficiency of human resources
- Regular flow of information at different levels of management
- Easy use of scientific tools and models for quality decision making
- Faster response to customers
- Better control over resources
- Faster access to records in case of dispute
- Effective use of manpower etc.

(ii) Search Engines

Search Engine is a program that searches documents for specified keywords and returns a list of the documents where the keywords were found. Although search engine is really a general class of programs, the term is often used to specifically describe systems like Google, Yahoo, etc. that enables users to search for documents on the www and Usenet, newsgroups.

Typically, a search engine works by sending out a robot, spider or crawler program to fetch as many documents as possible. A robot is a piece of software that automatically follows hyperlinks from one document to and creates an index based on the words contained in each document. Each search engine uses a proprietary algorithm to create its indices such that, ideally, only meaningful results are returned for each query. Broadly, there are two type of search engines:

(i) Individual: Individual search do not compile their own searchable databases on the web.

(ii) Meta: Meta-searchers do not compile databases. Instead, they search the databases of multiple sets of individual engines simultaneously.

(iii) Importance of Marketing Information System

- Anticipation of Customer Demand – Every marketer needs up-to-date knowledge about consumer needs and wants.
- Systematic Approach – Expanding markets and competitive marketing environment require adequate market intelligence system.
- Economic indicator – Marketers must have latest information on the changing trends of supply, demand and prices.
- Significance of Analysing Competition – Marketer cannot survive without having information regarding nature, character and size of competition to be met.

- Development of Technology – Marketers must have latest information regarding technological development.
- Understanding the Consumer – Information system can establish proper two way flow of information and understanding between marketers and consumer.
- Marketing Planning – Marketing plans and programmes are based upon information supplied by economic forecasts and market research.

(iv) Good Quality Information

The characteristics of good quality information – it should be:

- Accurate
- Up-to-date
- Relevant
- Complete
- On-time
- Appropriately presented
- Intelligible

(b) (i) Impediments in E-Commerce

The research conducted by many experts on impediments of E-Commerce. Some of them are identified and given as follows:

- Security: When an organization uses the internet to engage in e-commerce, it is likely many of its information are exposed to security risk, fraud and abuse. Out of them the most serious is credit card information.
- Legal Issues are many like protection against fraud, passing sensitive data to strangers etc.
- Cost of hardware, software and maintenance
- Lack of expertise
- Need of training
- Uncertainty of market

(ii)

Field Name	Maximum field size
Employee Number	5
Employee Name	36
Designation	10
Date of birth	5
Date of joining	5
Selection code	5
Qualification	20
Training codes	10
Scale of pay	10
Total size	106

Record length = 106
Total length of 2000 records = 2000 x 106
Adding 15% for fresh recruitments= 1.15 x 2000 x 106 = 243800
Adding 20% for overhead to minimize collision = 1.20 x 243800 = 292560
Adding 10% for contingency = 1.10 x 292560 = 321816
Hence total file space requirement = 321816.

(iii) There can be many specialists in a database environment. Some important specialists are-
Project Manager
System Analysts
Data Analysts
Programmer

Duties of System Analysts:
System analysts are responsible for determining how an existing system operates together with capturing of information on new system requirements. A wide range of fact-finding techniques can be used here. Analysts will then consolidate the information into requirement specification, which details the functionality and performance required from the new system. These documents will then be used as the framework to guide subsequent development of the system. System analysts also play an important role in the testing and implementation stages of a project. System analyst must possess various skills to effectively carry out the job, specifically interpersonal skills and technical skills.

Duties of Data Analyst:
Data analysts can be employed to refine and expand the requirements specification produced by system analysts. Typical task of data analyst includes detailed analysis of data to be included in the new system, leading to design of file and database structures. Data analysts also help to refine understanding of processes carried out on data in a system.

(c) (i) Setting up of basic system: Some important activities related to setting up of base system, having impact on all modules, are given below:

- Creation of a company: This is basically to create a data base. A number of data bases can be created to which one may be for actual transactions where as the others may be for used for testing and training. A Company may different hierarchies such as single logistics/single finance, multi logistics/single finance, multi logistics/multi finance etc.
- Setting up of currency: Currencies need to be configured as (i) base currency which is the legal currency of the country where the organization is operating (ii) Alternate reporting currencies, (iii) transaction currencies used for transaction with vendors and customers who may be spread over a number of countries.
- Setting up of calendar and periods: Calendars are used to record information on the availability of resources. Periods are time intervals that can be utilized for statistical, financial, planning and cost control purpose.
- Units of Measure: Base units of length, surface area, weight, time and their conversation factors for transactional purpose.
- Integration between finance and logistic: Setting up of inter company relations, mode of updating finance tables either in real time or in batch mode, mode of inventory valuation such as LIFO, FIFO, Standard Costing or Weighted Average, treatment of finalized and non finalized transactions on financial ledger etc.
- Defining number group, series type and series length: To be used as ID of a unique transaction like purchase orders, sales order, production order etc.
- Defining Countries: Customers and vendors are located in various countries for which country code need to be defined. This is very important due to necessity of tax calculation and reporting.

- Assigning Tax Codes: needed to be defined for sales, purchase, service, project transactions.

(ii) Cash Management Module in ERP

Cash management module provides information relating to cash flow of the organization, by processing and analyzing all cash and bank transactions, arising out of payment of supplier's invoices, receipt form sales invoice, stand alone payment and unallocated payment/receipts.

Cash management module also allows analyzing financial transactions for a given period of time and provides information regarding sources of fund and use of fund to ensure liquidity in order to meet payment obligations of the organization

(iii) Electronic Financial Transaction (EFT) refers to a process by which money is transferred from one person's bank account to another person's account electronically rather than using a cheque or transferring cash. Of course, these electronic transfers are also available to governments and businesses.

The types of Electronic Transactions are:
(a) Direct Deposits
(b) Direct Payments
(c) Online banking or internet banking or e-banking

(iv) The Act shall not be applicable to the following:

- a negotiable instrument as defined in Section 13 of the Negotiable Instruments Act, 1881;
- a Power of Attorney as defined in Section 1A of the Powers-of-Attorney Act, 1882;
- a trust as defined in Section 3 of the Indian Trusts Act, 1882;
- a will as defined in Section (h) of Section 2 of the Indian Succession Act, 1925 including any other testamentary disposition by whatever name called;
- any contract for the sale or conveyance of immovable property or any interest in such property;
- any such class of documents or transactions as may be notified by the Central Government in the Official Gazette.