Answer to MTP_Intermediate_Syllabus2012_Dec2014_Set 1

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) Explain the term Pacing. 2
(b) Define Order control. 2
(c) Define Forecast Error. 2
(d) State the principles of Total Quality. 2
(e) A workshop has 30 nos. of identical machines. From the failure pattern of the machines it is calculated that the expected time before failure is 3 months. It costs ₹200 to attend a failed machine and rectify the same. Compute the yearly cost of servicing the broken down machines. 2
(f) Write a note on Modularity. 2
(g) Define Representational data models. 2
(h) List the measures of a JIT system's reliability. 2
(i) State the basic characteristics of Business Process Re-engineering. 2
(j) Define Asymmetric Crypto System. 2

Answer:

(a) Pacing refers to the fixed timing of the movement of items through the process. In a serial process, the movement of items through each activity (or stage) is often paced in some mechanical way in order to to coordinate the line.

(b) The most, common type of production control is called order control. This type of control is commonly employed in companies with intermittent production systems, the so-called job-lot shops. Under this method, orders come into the shop for different quantities for different products. Therefore, production planning and control must be based on the individual orders.

(c) Forecast error is the numeric difference between the forecasted and actual demand. It is desirable that the difference between forecasted and actual demand is low as possible. There are two measures of error – (i) Mean Absolute Deviation (MAD) and (ii) Bias.

(d) Principles of Total Quality
- Focus on the customer (Both Internal & External)
- Participation and Team work
- Employee involvement and empowerment
- Continuous improvement and learning.

(e) No. of repair/machine/annum =12/3= 4
Considering 20 machines and ₹200 to attend a failed machine, the yearly cost of servicing = 30 x 4 x ₹200 = ₹24,000.

(f) A module is a manageable unit containing data and instructions to perform a well-defined task. Modularity is measured by two parameters Cohesion and Coupling. Cohesion refers to the manner in which elements within a module are linked. Coupling is a measure of the interconnection between modules. In a good modular design, cohesion will be high and coupling will be low.

(g) Representational or implementation data models are the models used most frequently in traditional commercial DBMSs, and they include the widely-used relational data model, as well as the so-called legacy data models- the network and hierarchical models-that have been widely used in the past. Representational data models represent data by using record structures and hence are3 sometimes called record-based data models.

(h) Some measures of a JIT system's reliability are

- Defect rates
- Cycle times
- Percent of time that deliveries are on time
- Order accuracy
- Actual production as a percent of planned production
- Actual machine time available compared to planned machine time available

(i) Some of the basic Characteristics of Business Process Re-engineering are:

- View business as a set of customer (both internal and external) oriented processes rather than a set of departmental functions.
- Processes must have clear cut ownership
- Non value adding activities within a process should be eliminated
- Gather information only once at the point of origin.

(j) Asymmetric Crypto System means a system of a secure key pair consisting of a private key for creating a digital signature and a public key to verify the digital signature.

Operation Management

Answer any three questions

2. (a) (i) Describe the factors influencing Product Design. 5

(ii) 'Loss of pride in workmanship exists throughout organization.'- Justify. 3

(iii) Define the term Competitive Benchmarking. 2

(iv) H Industries is planning to set up a new plant. Following is a table showing alternative locations and respective costs (in ₹)

Costs	Location 1	Location 2	Location 3	Location 4	Location 5
Transport,₹ per unit of production	1.00	1.50	1.35	1.65	1.70
Power, ₹ per unit of production	1.25	0.65	1.05	1.20	0.75
Investment in Land*	50 lakhs	35 lakhs	40 lakhs	20 lakhs	30 Lakhs
Building Construction*	130 lakhs	110 lakhs	120 lakhs	90 lakhs	100 Lakhs
Equipment (capital cost), ₹ per unit of production volume	2.50	2.80	2.00	3.00	4.50
Location Taxes, etc.	10 lakhs	8 lakhs	12 lakhs	9 lakhs	20 lakhs
Wages (average),₹ per unit of production	0.90	1.00	1.40	0.90	0.80

***to be costed at 15% per annum**

If the volume of production is to be 5,00,000 units, what is the preferred location? If the volume is expanded to 7,00,000 units, would the decision change? 6

(b) (i) Discuss the consequences of Industrial Automation. 4

(ii) The Everalert Ltd, which has a satisfactory preventive maintenance system in its plant, has installed a new Hot Air Generator based on electricity instead of fuel oil for drying the finished products. The Hot Air Generator requires periodic shutdown maintenance. If the shutdown is scheduled yearly, the cost of maintenance will be as under:

Maintenance cost	₹ 15,000	₹ 20,000	₹ 25,000
Probability	0.30	0.40	0.30

The costs are expected to be almost linear i.e. if the shutdown is scheduled twice per year, the maintenance cost will be double.

The probability distribution of breakdown cost is estimated as under:

Breakdown costs per annum	₹ 75,000	₹ 80,000	₹ 1,00,000
Shutdown once a year	0.20	0.50	0.30
Shutdown twice a year	0.50	0.30	0.20

Stimulate the total costs - maintenance and breakdown - and recommend whether the shutdown should be resorted once or twice a year.

Random numbers

Maintenance costs (shut down once a year)	27, 44, 22, 32, 97
Maintenance costs (shut down twice a year)	42, 04, 82, 38, 91
Breakdown costs (shut down once a year)	03, 50, 73, 87, 59
Breakdown costs (shut down twice a year)	54, 65, 49, 03, 56

(c) (i) A company has four zones open and four marketing managers available for assignments. The zones are not equal in sales potentials. It is estimated that a typical marketing manager operating in each zone would bring in the following annual sales:

Zones	East	West	North	South
Sales (₹)	2,40,000	1,92,000	1,44,000	1,20,000

The four marketing managers are also different in ability. It is estimated that working under the same conditions, their yearly sales would be proportionately as under:

Manager	M	N	O	P
	8	7	5	4

If the criterion is maximum expected total sales, find the optimum assignment and the maximum sales. 12

(ii) List the programmes included in Preventive Maintenance schedule 4

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

Activity	Dependence	Duration (days)	Activity	Dependence	Duration (Days)
A	-	6	G	C, D	3
B	-	3	H	E	5
C	A	5	I	C ,D	5
D	A	4	J	G,H	2

E	B	3	K	F	3
F	B	2	L	J,K	2

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(ii) Discuss how Bench trending differs from Bench Marking? 6

Answer:

(a) (i) Factors Influencing Product Design

1) Customer requirements: The designers must find out the exact requirements of the customers to ensure that the products suit the convenience of customers for use. the products must be designed to be used in all kinds of conditions.
2) Convenience of the operator or user: the industrial products such as machines and tools should be so designed that they are convenient and comfortable to operate or use.
3) Trade off between function and form: the design should combine both performance and aesthetics or appearance with a proper balance between the two.
4) Types of materials used: Discovery of new and better materials can improve the product design. Designers keep in touch with the latest developments taking place in the field of materials and components and make use of improved materials and components in their product designs.
5) Work methods and equipments: Designers must keep abreast of improvements in work methods, processes and equipments and design the products to make use of the latest technology and manufacturing processes to achieve reduction in costs.
6) Cost/Price ratio: in a competitive market, there is lot of pressure on designers to design products which are cost effective because cost and quality are inbuilt in the design. With a constraint on the upper limit on cost of producing products, the designer must ensure cost effective designs.
7) Product quality: The product quality partly depends on quality of design and partly on quality of conformance. The quality policy of the firm provides the necessary guidelines for the designers regarding the extent to which quality should be built in the design stage itself by deciding the appropriate design specifications and tolerances.
8) Process capability: The product design should take into consideration the quality of conformance, i.e., the degree to which quality of design is achieved in manufacturing. This depends on the process capability of the machines and equipments. However, the designer should have the knowledge of the capability of the manufacturing facilities and specify tolerances which can be achieved by the available machines and equipments.
9) Effect on existing products: new product designs while replacing existing product designs, must take into consideration the use of standard parts and components, existing manufacturing and distribution strategies and blending of new manufacturing technology with the existing one so that the costs of implementing the changes are kept to, the minimum.
10) Packaging: packaging is an essential part of a product and packaging design and product design go hand in hand with equal importance. Packaging design must take into account the objectives of packaging such as protection and promotion of the product. attractive packaging enhances the sales appeal of products in case of consumer products (nondurable).

(ii) Loss of pride in workmanship exists throughout organizations because

(1) Workers do not know how to relate to the organization's mission.
(2) They are being blamed for system problems.
(3) Poor designing leads to the production of "Junk".
(4) Inadequate training is provided.
(5) Punitive supervision exists.
(6) Inadequate or ineffective equipment is provided for performing the required work.

(iii) Competitive Benchmarking- This type of benchmarking can be carried out on the basis of product, functions department or on a co. wide basis this is a cross comparison with in one industrial sector aimed at establishing best practice through the identification of gaps between your own and your competitors performance.

(iv) For 5,00,000 units production per annum the costs at various sites are:

Costs	Location 1	Location 2	Location 3	Location 4	Location 5
Transport	5,00,000	7,50,000	6,75,000	8,25,000	8,50,000
Power,	6,25,000	3,25,000	5,25,000	6,00,000	3,75,000
Land	7,50,000	5,25,000	6,00,000	3,00,000	4,50,000
Building Construction	19,50,000	16,50,000	18,00,000	13,50,000	15,00,000
Equipment	12,50,000	14,00,000	10,00,000	15,00,000	22,50,000
Taxes	10,00,000	8,00,000	12,00,000	9,00,000	20,00,000
Wages	4,50,000	5,00,000	7,00,000	4,50,000	4,00,000
Total Cost (₹)	65,25,000	59,50,000	65,00,000	59,25,000	78,25,000

Therefore at a volume of 5,00,000 units, Site No. 4 is preferred as it has the lowest total cost.

For 7,00,000 units production per annum the costs at various sites are:

Costs	Location 1	Location 2	Location 3	Location 4	Location 5
Transport	7,00,000	10,50,000	9,45,000	11,55,000	11,90,000
Power,	8,75,000	4,55,000	7,35,000	8,40,000	5,25,000
Land	7,50,000	5,25,000	6,00,000	3,00,000	4,50,000
Building Construction	19,50,000	16,50,000	18,00,000	13,50,000	15,00,000
Equipment	17,50,000	19,60,000	14,00,000	21,00,000	31,50,000
Taxes	10,00,000	8,00,000	12,00,000	9,00,000	20,00,000
Wages	6,30,000	7,00,000	9,80,000	6,30,000	5,60,000
Total Cost (₹)	76,55,000	71,40,000	76,60,000	72,75,000	93,75,000

Therefore at a volume of 7,00,000 units, Site No. 2 is preferred as it has the lowest total cost.

(b) (i) Industrial automation results in the elimination of workers' jobs; for example robots replacing welders, painters or NC/CNC machines replacing the machine setters or operators, AGVs replacing operators driving the material handling equipments and so on.

But in the long-run automation also creates some new jobs in engineering, selling and servicing new technology products. Workers need to be trained to occupy new job positions created by automation. However, some white collar and blue collar workers may lose their jobs and will have to search for new jobs because not all companies provide for retention or retraining of displaced workers.

(ii) Probability Distribution (Maintenance cost)

Cost (₹)	Probability	Cum. Probability	Range	Range for simulation
15,000	0.30	0.30	0 – 0.30	0 – 0.29
20,000	0.40	0.70	0.30 – 0.70	0.30 – 0.69
25,000	0.30	1.00	0.70 – 1.00	0.70 – 0.99

Probability Distribution (Breakdown cost; shutdown once a year)

Cost (₹)	Probability	Cum. Probability	Range	Range for simulation
75,000	0.20	0.20	0 – 0.20	0 – 0.19
80,000	0.50	0.70	0.20 – 0.70	0.20 – 0.69
1,00,000	0.30	1.00	0.70 – 1.00	0.70 – 0.99

Probability Distribution (Breakdown cost; shutdown twice a year)

Cost (₹)	Probability	Cum. Probability	Range	Range for simulation
75,000	0.50	0.50	0 – 0.50	0 – 0.49
80,000	0.30	0.80	0.50 – 0.80	0.50 – 0.79
1,00,000	0.20	1.00	0.80 – 1.00	0.80 – 0.99

Shut down once a year

Maintenance cost p.a.	Breakdown cost p.a.
15,00	75,000
20,000	80,000
15,000	1,00,000
20,000	1,00,000
25,000	80,000
Total ₹95,000	Total ₹4,35,000
Average ₹19,000	Average ₹87,000
Total cost ₹19,000 + ₹87,000 = ₹1,06,000	

Shut down Twice a year

Maintenance cost p.a.	Breakdown cost p.a.
20,000 × 2	80,000
15,000 × 2	80,000
25,000 × 2	75,000
20,000 × 2	75,000
25,000 × 2	80,000
Total ₹2,10,000	Total ₹3,90,000
Average ₹42,000	Average ₹78,000
Total cost ₹42,000 + ₹78,000 = ₹1,20,000	
Shutdown once a year is recommended on account of lower annual cost.	

(c) (i) Let Manager M represents the typical marketing Manager.

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	240	210	150	120
West	192	168	120	96
North	144	126	90	72
South	120	105	75	60

Opportunities Loss Matrix

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	30	90	120
West	48	72	120	144
North	96	114	150	168
South	120	135	165	180

Row minimum operation

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	30	90	120
West	0	24	72	96
North	0	18	54	72
South	0	15	45	60

Column minimum operation

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	15	45	60
West	0	9	27	36
North	0	3	9	12
South	0	0	0	0

Minimum number of lines

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	15	45	60
West	0	9	27	36
North	0	3	9	12
South	0	0	0	0

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

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	12	42	57
West	0	6	24	33
North	0	0	6	9
South	3	0	0	0

Minimum No. of lines

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	12	42	57
West	0	6	24	33
North	0	0	6	9
South	3	0	0	0

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

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	12	36	51
West	0	6	18	27

North	0	0	0	3
South	9	6	0	0

Minimum No. of lines

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	12	36	51
West	0	6	18	27
North	0	0	0	3
South	9	6	0	0

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

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	6	30	45
West	0	0	12	21
North	6	0	0	3
South	15	6	0	0

Minimum No. of lines

Zones ↓	Manager M	Manager N	Manager O	Manager P
East	0	6	30	45
West	0	0	12	21
North	6	0	0	3
South	15	6	0	0

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

Zones↓	Manager M	Manager N	Manager O	Manager P
East	[0]	6	30	45
West	0	[0]	12	21
North	6	0	[0]	3
South	15	6	0	[0]

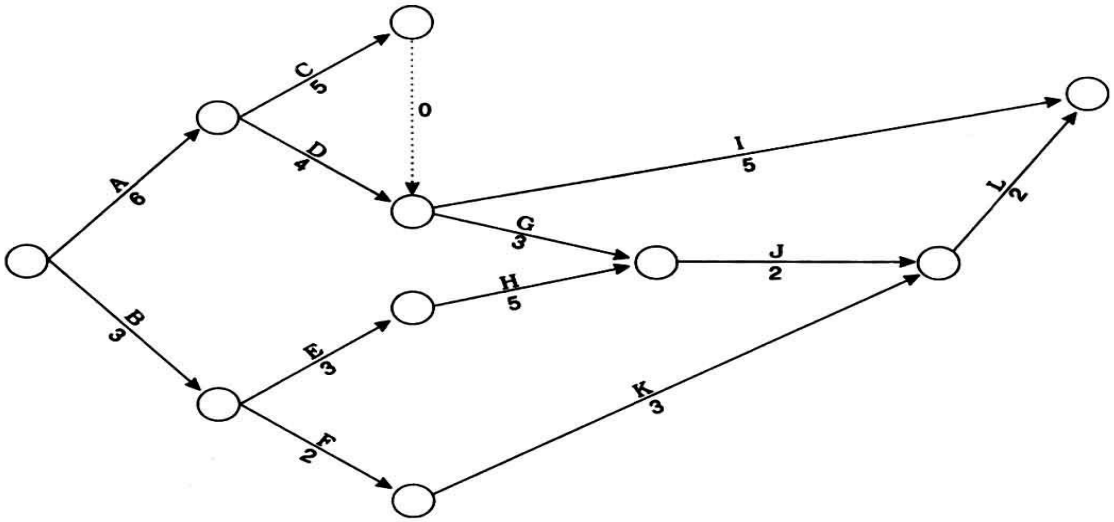
Zones↓	Manager ↓	Sales ↓
East	Manager M	₹2,40,000
West	Manager N	₹1,68,000
North	Manager O	₹90,000
South	Manager P	₹60,000
Total		₹5,58,000

(ii) The maintenance programme includes the following:

(a) Reconditioning or replacing of worn out parts or tools.
(b) Repairing or replacing worn out parts or tools.
(c) Checking all electrical connection of the machine or equipment.
(d) Checking the performance of each part of the machine or equipment.
(e) Cleaning of interior parts such as gear box, radiator etc., of transport and material handling equipments.

(f) Checking of control systems.
(g) Complete overhauling.

(d) (i)



Paths	Duration (days)	Paths	Duration (days)
ACI	6+5+5 = 16	ADGJL	6+4+3+2+2 = 17
ADI	6+4+5 = 15	BEHJL	3+3+5+2+2 = 15
ACGJL	6+5+3+2+2 = **18 Critical**	BFKL	3+2+3+2 = 10

(ii) Benchmarking involves comparing the practices of the organization with best management practices from across the globe. It helps an organization to learn the potential and limitations of its own operations as well as those of the industry leaders, thereby controlling the limitations and eliminating the weaknesses in its operations. Bench trending helps in controlling and directing the organization's response to the volatility of the market forces and the dynamics of the industry in which it operates. It involves assessing the existing situation and anticipating changes in the critical market conditions and consumer preference variables and evaluating their impact. Benchmarking can be broadly classified into two types-competitive and generic. Competitive benchmarking focuses on the products and manufacturing processes of the organization's competitors, while generic benchmarking evaluates the processes of the organization against those of organizations considered the best in those processes. Bench trending can be broadly classified into strategic and process bench trending. Strategic benchtrending controls the growth direction of the business unit and sets long-term goals and objectives, while process bench trending is used to control the performance of a specific function or process of the organization.

Information System

Answer any two questions.

3. (a) (i) State the advantages of System Development Life Cycle from the perspective of Information System Audit. 4

(ii) Write a note on File Library. 3

(iii) Define Database Administrator. 4

(iv) In a Purchasing Order Processing system, a purchase order record has the following fields:

Field Name	Maximum Field Size
Purchase order number	6
Vendor Code	3
Order-quality	5
Order date	6
Record Deletion maker	1

It is estimated that at any point of time, the outstanding Purchase Order file would have a maximum of 750 outstanding purchase order records in the file (once material is received, the purchase order record is purged from the file.) However, there may be a 15% increase in the total number of records in near future. The file management software also requires an overhead of 20% for minimizing probabilities of collision and overflow conditions. Compute the total file space requirements after allowing for 10% contingency factor on the total. 5

(b) (i) Describe the term On-line Analytical Processing. 4

(ii) Discuss the importance of Marketing Information System. 4

(iii) 'A successful BPR implementation brings significant improvement to productivity, customer service and bottom –line.'- State the implementation phases. 8

(c) (i) Describe the composition of the Cyber Appellate Tribunal. 4

(ii) List the main reasons for the spread of E-commerce. 6

(iii) 'According to Section 30 of the Information Technology Act,2000, Certifying Authority shall follow certain procedures in respect of Digital Signatures.'- List the procedures. 4

(iv) Define Configuration. 2

Answer:

(a) (i) Advantages of System development life Cycle from the perspective of IS audit

- If the detailed documentation is maintained during each phase of the SDLC the IS auditor can easily understand each phases,
- The IS auditor on the basis of his examination, can write in his report about the compliance by the IS management of the procedures, if any, set by the management,
- If The IS Auditor has a technical knowledge and ability of the area of SDLC, the IS Auditor can guide during the various phases of SDLC.
- The IS auditor can also provide an evaluation of the methods and techniques used through the various development phases of the SDLC.

(ii) File Library: Managing the organizations library of machine readable files involves 3 functions:

- Files must be used only for the purposes intended.
- The storage media used for files must be maintained in correct working order.
- A file backup strategy and file retention strategy must be implemented.

The file librarian is responsible for recording, issuing, receiving and safeguarding all programs and data files that are maintained on computer tapes or disks.

(iii) Database administrators

In any organization where many persons use the same resources, there is a need for a chief administrator to oversee and manage these resources. in a database environment, the primary resource is the database itself and the secondary resource is the DBMs and related software. Administering these resources is the responsibility of the database administrator (DBA). The DBA is responsible for authorizing access to the database, for coordinating and monitoring its use, and for acquiring software and hardware resources as needed. The DBA is accountable for problems such as breach-of security or poor system response time. In large organizations, the DBA is assisted by a staff that helps carry out these functions.

(iv) Calculation of Record Size:

Field Name	Maximum Field Size
Purchase order number	6
Vendor Code	3
Order-quality	5
Order date	6
Record Deletion maker	1
Therefore, Record Size	21

Calculation of File Space Requirement:

Record Size(a)	21
Maximum expected records(b)	750
Required Record Space(c=a x b)	15,750
+15% increase in future (15% of c)	2,363
(d)	18,113
+ 20% overhead (20% of d)	3,623
(e)	21,736
+10% contingency (10% of e)	2,174
Therefore, file space required	23,910

(b) (i) On-line Analytical Processing (OLAP)

An OLAP software does the analysis of information from data warehouse. The OLAP applications are widely scattered in divergent application area like finance Management, sales analysis. The real test of an OLAP system is inefficient use of data from databases and computational capability of data to develop model establishing the relationship of various parameters. In fact, it provides the services of 'just-in-time' information.

Though OLAP software are found in widely divergent functional areas, they have three common key features which are:

- Multidimensional views of data
- High analytical ability
- 'Just-in-time' information delivery

Rarely a business model limited a fewer than three dimensions. The common dimensions in business environment are organization, line item, time, product, channel, place etc. OLAP system should have the ability to respond the queries from a manager within a specified time. The OLAP software must provide a rich tool kit of powerful capability of analytical ability.

(ii) 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.

(iii) Implementation phases of Business Process Re-engineering

- Project kick off: project goal, project team and communication standards are agreed upon. a number of workshops are held where project scope, sponsors commitment, project risk, milestones and deliverables are discussed. A SWOT (strength, weakness, opportunities and threat) analysis is carried out with active participation of all.

- Process identification and data gathering: "As is" processes are assembled through flow charts. Current practice of interfacing with business partners is gathered. Bottlenecks, delays, complexity, internal blame games, idle assets etc. are brought forward. Use of existing technologies is comprehended. Major and strategic business processes to be reengineered, are identified. Stakeholders categorize the processes to be reengineered and agreed upon on the timeline of implementation.

- Process reengineering: in this phase, actual reengineering begins. a number of brain storming sessions are held with project team and other stakeholders, where current business processes are critically analyzed to determine non value adding activities and identify excess control and check, always with customer value as a focal point. Impact of new technologies on process improvement is also evaluated. New process ideas with reduced check and control and enabling technologies such as Workflow Automation and ERP, are envisaged. Benchmarking is also done with best of breed industrial peers.

- Blueprint of new system: Blueprinting involves modeling workflow and information requirement, of new business processes. "To be" processes are modeled using various modeling tools. New organization structures, human resource need, performance monitoring and compensation, technological needs, are also outlined. Normally, a

first cut redesign scheme is produced which is modified after gathering actionable feedback from the stakeholders.

- Transformation: A migration strategy and a migration plan is the first step of transformation. Migration strategy may decide as a pilot, phased or big bang implementation. The migration plan would include establishment of new organizational structure, detailed training and reallocation of workforce, and cut off dates for implementation. Change management and introduction of new technologies will form an important part and may need engagement of outside consultants for this specific purpose. There should be provision on the plan to tweak the implemented system so as to get maximum value out of it.

(c) (i) The composition of the Cyber Appellate Tribunal is provided for under section 49 of the Information technology act, 2000. Initially the tribunal consisted of only one person who was referred to as the Presiding Officer who was to be appointed by way of notification by the Central Government. Thereafter the Act was amended in the year 2008 by which section 49 which provides for the composition of the Cyber appellate tribunal has been changed. As per the amended section the tribunal shall consist of a Chairperson and such number of other Members as the Central Government may by notification in the Official Gazette appoint. The selection of the Chairperson and Members of the Tribunal is made by the Central Government in consultation with the Chief Justice of India. The Presiding Officer of the tribunal is now known as the Chairperson.

(ii) Main reasons for the Spread of E-commerce:

- Digital convergence, i.e., it means that due to digital revolution almost all digital devices can communicate with one another.
- Today's E-commerce is available to anyone, anywhere in the world, anytime 24/7 (24 hours a day, 7 days a week).
- It helps in bringing about positive changes in an organization.
- People are now having a widespread access to it and personal Computers (PCs).
- E-commerce helps in reducing operating costs and increasing profit margins due to global operations.
- Demand for customized products and services are increasing.

(iii) According to section 30 of the Information Technology Act, 2000, Certifying Authority shall follow certain procedures in respect of Digital Signatures as given below:

- Make use of hardware, software and procedures that are secure from intrusion and misuse.
- Provide a reasonable level of reliability in its services, which are reasonably suited to the performance of intended functions.
- Adhere to security procedures to ensure that the secrecy and privacy of the digital signatures are assured and
- Observe such other standards, as specified by the regulation.

(iv) Configuration of an ERP system deals with handling of numerous usage controls, which can be switched off or switched on, so as to balance its functionalities to extant needs. First thing to happen is to install specific modules needed and configuring these modules, as per the scope of the project. Thousands of configuration tables are present, which define how the system should operate, how the data entry screen will look like, how the signals and massages will appear etc.