

MOCK TEST PAPER-II
INTERMEDIATE (IIPC): GROUP – II
PAPER – 7: INFORMATION TECHNOLOGY AND STRATEGIC MANAGEMENT
SECTION – A: INFORMATION TECHNOLOGY
ANSWERS

MULTIPLE CHOICE QUESTIONS (Answer 1-4 are based on case scenario)

1. (a) Batch Processing
2. (b) Preauthorized Transfer
3. (c) Electronic Calendaring
4. (a) System Analyst
5. (c) Improves business process after certain loss in business
6. (b) Flow chart is easy to used where the problem logic is complex.
7. (b) Communication as a Service
8. (a) Peer-to-Peer Networking
9. (d) Funding
10. (b) Topological Control

Part II: Descriptive Answers

1. (a) Various types of audit that may be conducted during System Development Process are as follows:
 - **Concurrent Audit:** Auditors are members of the system development team. They assist the team in improving the quality of systems development for the specific system they are building and implementing.
 - **Post-implementation Audit:** Auditors seek to help an organization learn from its experiences in the development of a specific application system. In addition, they might be evaluating whether the system needs to be scrapped, continued, or modified in some way.
 - **General Audit:** Auditors evaluate systems development controls overall. They seek to determine whether they can reduce the extent of substantive testing needed to form an audit opinion about management's assertions relating to the financial statements for systems effectiveness and efficiency.
- (b) The different types of servers, based on the nature of service they provide are as follows:
 - ◆ **File server:** This is a computer and storage device dedicated to storing files. Any user on the network can store files on the server.
 - ◆ **Print server:** This is a computer that manages one or more printers.
 - ◆ **Network server:** This is a computer that manages network traffic.
 - ◆ **Database server:** This is a computer system that processes database queries.
 - ◆ **Application Server:** This is a program that handles all application operations between users and an enterprise's backend business applications or databases.

- ◆ **Web Servers:** Web servers are computers that deliver (serves up) web pages. Every web server has an IP address and possibly a domain name. For example, if we enter the URL <http://www.icaai.org> in our browser, this sends a request to the Web server whose domain name is icaai.org. The server then fetches the home page named and sends it to our browser. Any computer can be turned into a Web server by installing server software and connecting the machine to the Internet.
 - ◆ **Mail Server:** Mail servers move and store mail over corporate networks.
2. (a) Various ways by which Mr. Amit can make the physical or logical arrangement of links and linking devices in a network are as follows:
- ◆ Star network
 - ◆ Ring network
 - ◆ Bus network
 - ◆ Mesh Network
- A. Star Network:** The star network, a popular network configuration, involves a central unit that has a number of terminals tied into it. The characteristics of a star network are:
- It ties end user computers to a central computer.
 - The central unit in the star network acts as the traffic controller among all the other computers tied to it. The central computer is usually a mainframe (host), which acts as the file server.
 - A star network is well suited to companies with one large data processing facility shared by a number of smaller departments. Many star networks take the form of hierarchical networks with a centralized approach.
- B. Bus Network:** In a bus network, a single length of wire, cable, or optical fiber connects a number of computers. The features of a bus network are as follows:
- All communications travel along this cable, which is called a bus.
 - Bus networks have a decentralized approach.
- C. Ring Network:** A ring network is much like a bus network, except the length of wire, cable, or optical fiber connects to form a loop. The characteristics of a ring network are:
- Local computer processors are tied together sequentially in a ring with each device being connected to two other devices.
 - A ring network has a decentralized approach.
 - When one computer needs data from another computer, the data is passed along the ring.
 - Considered more reliable and less costly than star networks because if one computer fails, the other computers in the ring can continue to process their own work and communicate with each other.
- D. Mesh Network:** In this structure, there is random connection of nodes using communication links. A mesh network may be fully connected or connected with only partial links. The characteristics of a Mesh network are:
- In fully interconnected topology, each node is connected by a dedicated point to point link to every node.

- The reliability is very high as there are always alternate paths available if direct link between two nodes is down or dysfunctional.
- Fully connected networks are not very common because of the high cost. Only military installations, which need high degree of redundancy, may have such networks, that too with a small number of nodes.

(b) The information system which is capable to link data of an organization from various sources both internal and external to provide the amount and kind of information executives find useful is **Executive Information system or Enterprise Information Systems or Executive Support Systems (ESS)**. The components of EIS are as follows:

Component	Description
Hardware	Includes Input data-entry devices, CPU, Data Storage files and Output Devices.
Software	Includes Text base software, Database, and Graphic types such as time series charts, scatter diagrams, maps, motion graphics, sequence charts, and comparison-oriented graphs (i.e., bar charts) Model base.
User Interface	Includes hardware (physical) and software (logical) components by which people (users) interact with a machine. Several types of interfaces can be available to the EIS structure, such as scheduled reports, questions/answers, menu driven, command language, natural language, and input/output.
Telecommunication	Involves transmitting data from one place to another in a reliable networked system.

3. (a) The different types of application software are as follows:

- ◆ **Application Suite:** Has multiple applications bundled together. Related functions, features and user interfaces interact with each other. E.g. MS Office 2010 which has MS Word, MS Excel, MS Access, etc.
- ◆ **Enterprise Software:** Addresses an enterprise's needs and data flow in a huge distributed environment. E.g. ERP Applications like SAP.
- ◆ **Enterprise Infrastructure Software:** Provides capabilities required to support enterprise software systems. E.g. email servers, Security software.
- ◆ **Information Worker Software:** Addresses individual needs required to manage and create information for individual projects within departments. E.g. Spreadsheets, CAAT (Computer Assisted Audit Tools) etc.
- ◆ **Content Access Software:** Used to access contents and addresses a desire for published digital content and entertainment. E.g. Media Players, Adobe Digital etc.
- ◆ **Educational Software:** Holds contents adopted for use by students. E.g. Examination Test CDs.
- ◆ **Media Development Software:** Addresses individual needs to generate and print electronic media for others to consume. E.g. Desktop Publishing, Video Editing etc.

(b) The steps involved in Business Process Automation are as follows:

Step 1: Define why we plan to implement a BPA?

Step 2: Understand the rules/ regulation under which it needs to comply with?

Step 3: Document the process, we wish to automate.

Step 4: Define the objectives/goals to be achieved by implementing BPA.

Step 5: Engage the business process consultant.

Step 6: Calculate the RoI for project.

Step 7: Development of BPA.

Step 8: Testing the BPA.

4. (a) The life-cycle of Six Sigma having phases: **Define, Measure, Analyze, Improve** and **Control** (or **DMAIC**) which are described as follows :

- (i) **Define:** Customers are identified and their requirements are gathered. Measurements that are critical to customer satisfaction [Critical to Quality, (CTQ)] are identified for further project improvement.
- (ii) **Measure:** Process output measures that are attributes of CTQs are determined and variables that affect these output measures are identified. Data on current process are gathered and current baseline performance for process output measures are established. Variances of output measures are graphed and process sigma are calculated.
- (iii) **Analyze:** Using statistical methods and graphical displays, possible causes of process output variations are identified. These possible causes are analyzed statistically to determine root cause of variation.
- (iv) **Improve:** Solution alternatives are generated to fix the root cause. The most appropriate solution is identified using solution prioritization matrix and validated using pilot testing. Cost and benefit analysis is performed to validate the financial benefit of the solution. Implementation plan is drafted and executed.
- (v) **Control:** Process is standardized and documented. Before and after analysis is performed on the new process to validate expected results, monitoring system is implemented to ensure process is performing as designed. Project is evaluated and lessons learned are shared with others.

(b) Network security threats can be categorized into four broad themes, which are as follows:

- ◆ **Unstructured Threats** - These originate mostly from inexperienced individuals using easily available hacking tools from the Internet. Many tools available to anyone on the Internet can be used to discover weaknesses in a company's network. These include port-scanning tools, address-sweeping tools, and many others. Most of these kinds of probes are done more out of curiosity than with a malicious intent in mind. For example, if a company's external web site is hacked; the company's integrity is damaged. Even if the external web site is separate from the internal information that sits behind a protective firewall, the public does not know that. All they know is that if the company's web site is hacked, then it is an unsafe place to conduct business.
- ◆ **Structured Threats** - These originate from individuals who are highly motivated and technically competent and usually understand network systems design and the vulnerabilities of those systems. They can understand as well as create hacking scripts to penetrate those network systems. An individual who presents a structured threat typically targets a specific destination or group. Usually, these hackers are hired by industry competitors, or state-sponsored intelligence organizations.
- ◆ **External Threats** - These originate from individuals or organizations working outside an organization, which does not have authorized access to organization's computer systems or

network. They usually work their way into a network from the Internet or dialup access servers.

- ◆ **Internal Threats** - Typically, these threats originate from individuals who have authorized access to the network. These users either have an account on a server or physical access to the network. An internal threat may come from a discontented former or current employee or contractor. It has been seen that majority of security incidents originate from internal threats.

5. (a) The key components of an Expert System are as follows:

- **Knowledge Base:** This includes the data, knowledge, relationships, rules of thumb (heuristics), and decision trees used by experts to solve a particular problem. A knowledge base is the computer equivalent of all the knowledge and insight that an expert or group of experts develop through years of experience in their field. The knowledge base of expert systems encloses both realistic and heuristic knowledge. Realistic knowledge is that knowledge of the job domain that is extensively shared, characteristically found in textbooks or journals, and frequently agreed upon by those knowledgeable in the meticulous field whereas Heuristic knowledge is the fewer rigorous, extra empirical, supplementary judgmental knowledge of performance. In contrast to factual knowledge, heuristic knowledge is not often discussed, and is principally individualistic. It is the knowledge of high-quality put into practice, good decision, and reasonable reasoning in the field. It is the knowledge that underlies the "art of good guessing."
- **Inference Engine:** This program contains the logic and reasoning mechanisms that simulate the expert logic process and deliver advice. It uses data obtained from both the knowledge base and the user to make associations and inferences, form its conclusions, and recommend a course of action.
- **User Interface:** This program allows the user to design, create, update, use and communicate with the expert system.
- **Explanation facility:** This facility provides the user with an explanation of the logic the ES used to arrive at its conclusion.
- **Database of Facts:** This holds the user's input about the current problem. The user may begin by entering as much as they know about the problem or the inference engine may prompt for details or ask whether certain conditions exist. Gradually a database of facts is built up which the inference engine will use to come to a decision. The quality and quantity of data gained from the user will influence the reliability of the decision.

(b) The four major components of Data Flow Diagram are as follows:

- (i) **Entity:** An entity is the source or destination of data. The source in a DFD represents these entities that are outside the context of the system. Entities either provide data to the system (referred to as a source) or receive data from it (referred to as a sink). Entities are often represented as rectangles (a diagonal line across the right-hand corner means that this entity is represented somewhere else in the DFD). Entities are also referred to as agents, terminators, or source/sink.
- (ii) **Process:** The process is the manipulation or work that transforms data, performing computations, making decisions (logic flow), or directing data flows based on business rules. In other words, a process receives input and generates some output. Process names (simple verbs and dataflow names, such as "Submit Payment" or "Get Invoice") usually describe the transformation, which can be performed by people or machines. Processes can

be drawn as circles or a segmented rectangle on a DFD, and include a process name and process number.

- (iii) **Data Store:** A data store is where a process stores data between processes for later retrieval by that same process or another one. Files and tables are considered data stores. Data store names (plural) are simple but meaningful, such as “customers”, “orders” and “products.” Data stores are usually drawn as a rectangle with the right hand side missing and labeled by the name of the data storage area it represents, though different notations do exist.
- (iv) **Data Flow:** Data flow is the movement of data between the entity, the process and the data store. Data flow portrays the interface between the components of the DFD. The flow of data in a DFD is named to reflect the nature of the data used (these names should also be unique within a specific DFD). Data flow is represented by an arrow, where the arrow is annotated with the data name.

SECTION – B: STRATEGIC MANAGEMENT

SUGGESTED ANSWERS/HINTS

1. (A)

(1)	(2)	(3)	(4)	(5)
(b)	(c)	(d)	(c)	(b)

(B) (c)

(C) (c)

(D) (b)

(E) (a)

(F) (c)

(G) (b)

(H) (a)

2. The strategy used here was of developing a competitive advantage via product which helped Kamal Sweets Corner regain their lost business. This is also one of the major importance cum advantage of strategic management, that is helps to develop core competencies and competitive advantages to overcome competition.

This strategy was a Reactive strategy. Wherein, the owners saw their business fall to 50% of revenue and then seeking a strategic advisory. They did not plan proactively as to when the new shops were already opening. They reacted only when the business started to lose up.

Generally, it is always beneficial to develop strategies proactively, so that the dip in businesses is small and manageable, and even if they are huge, the management has ample time to fix it.

3. (a) The presence of strategic management cannot counter all hindrances and always achieve success as there are limitations attached to strategic management. These can be explained in the following lines:
- ♦ **Environment is highly complex and turbulent.** It is difficult to understand the complex environment and exactly pinpoint how it will shape-up in future. The organisational estimate about its future shape may awfully go wrong and jeopardise all strategic plans. The environment affects as the organisation has to deal with suppliers, customers, governments and other external factors.
 - ♦ **Strategic Management is a time-consuming process.** Organisations spend a lot of time in preparing, communicating the strategies that may impede daily operations and negatively impact the routine business.
 - ♦ **Strategic Management is a costly process.** Strategic management adds a lot of expenses to an organization. Expert strategic planners need to be engaged, efforts are made for analysis of external and internal environments devise strategies and properly implement. These can be really costly for organisations with limited resources particularly when small and medium organisations create strategies to compete.

In a competitive scenario, where all organisations are trying to move strategically, it is difficult to clearly estimate the competitive responses to the strategies.

- (b) A strategic group consists of those rival firms which have similar competitive approaches and positions in the market. Companies in the same strategic group can resemble one another in any of the several ways – have comparable product-line breadth, same price/quality range, same distribution channels, same product attributes, identical technological approaches, offer similar services and technical assistance and so on.

The procedure for constructing a strategic group map and deciding which firms belong in which strategic group is as follows:

- ◆ Identify the competitive characteristics that differentiate firms in the industry typical variables are price/quality range (high, medium, low); geographic coverage (local, regional, national, global); degree of vertical integration (none, partial, full); product-line breadth (wide, narrow); use of distribution channels (one, some, all); and degree of service offered (no-frills, limited, full).
 - ◆ Plot the firms on a two-variable map using pairs of these differentiating characteristics.
 - ◆ Assign firms that fall in about the same strategy space to the same strategic group.
 - ◆ Draw circles around each strategic group making the circles proportional to the size of the group's respective share of total industry sales revenues.
4. (a) A company's mission statement is typically focused on its present business scope — “who we are and what we do”; mission statements broadly describe an organizations present capabilities, customer focus activities and business makeup. An organisation's mission states what customers it serves, what need it satisfies, and what type of product it offers. It is an expression of the growth ambition of the organisation. It helps organisation to set its own special identity, business emphasis and path for development. Mission amplifies what brings the organisation to this business or why it is there, what existence it seeks and what purpose it seeks to achieve as a business organisation.

In other words, the mission serves as a justification for the firm's very presence and existence; it legitimizes the firm's presence.

- (b) Following are the differences between Divestment and Liquidation strategy:

Divestment Strategy	Liquidation Strategy
Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit center or SBU.	It involves closing down a firm and selling its assets.
Divestment is usually a part of rehabilitation or restructuring plan and is adopted when a turnaround has been attempted but has proved to be unsuccessful. Option of a turnaround may even be ignored if it is obvious that divestment is the only answer.	Liquidation becomes only option in case of severe and critical conditions where either turnaround or divestment are not seen as solution or have been attempted but failed.
Efforts are made for the survival of organization.	Liquidation as a form of retrenchment strategy is considered as the most extreme and unattractive.
Survival of organization helps in retaining personnel, at least to some extent.	There is loss of employment with stigma of failure.

5. (a) The Best Cost Provider strategy would ensure a better reach to the not so affluent customers and provide them with good quality cycles and equipments, thus tapping in on the increasing trend of cycling.

Two sub-strategies that can be implemented are:

1. Offering lower prices than rivals for the same quality of products
2. Charging same prices for better quality of products

The idea of Mr. Vijay is to provide almost same quality of products in terms of functionality if not so in terms of branding, to customer who do not have huge sums of money to pay. Thus, sub-strategy number one, offering lower prices for almost same quality should be implemented to become the best cost provider of cycles and related equipments in the market.

- (b) Human resource management has been accepted as a strategic partner in the formulation of organization's strategies and in the implementation of such strategies through human resource planning, employment, training, appraisal and reward systems. The following points should be kept in mind as they can have a strong influence on employee competence:
- i. **Recruitment and selection:** The workforce will be more competent if a firm can successfully identify, attract, and select highly competent applicants.
 - ii. **Training:** The workforce will be more competent if employees are well trained to perform their jobs properly.
 - iii. **Appraisal of performance:** The performance appraisal is to identify any performance deficiencies experienced by employees due to lack of competence. Such deficiencies, once identified, can often be solved through counselling, coaching or training.
 - iv. **Compensation:** A firm can usually increase the competency of its workforce by offering pay, benefits and rewards that are not only attractive than those of their competitors but also recognizes merit.
6. (a) Leading change has to start with diagnosing the situation and then deciding which of several ways to handle it. Managers have five leadership roles to play in pushing for good strategy execution:
- (i) Staying on top of what is happening, closely monitoring progress, solving out issues, and learning what obstacles lie in the path of good execution.
 - (ii) Promoting a culture of esprit de corps that mobilizes and energizes organizational members to execute strategy in a competent fashion and perform at a high level.
 - (iii) Keeping the organization responsive to changing conditions, alert for new opportunities, bubbling with innovative ideas, and ahead of rivals in developing competitively valuable competencies and capabilities.
 - (iv) Exercising ethical leadership and insisting that the company conduct its affairs like a model corporate citizen.
 - (v) Pushing corrective actions to improve strategy execution and overall strategic performance.
- (b) The various steps in Benchmarking Process are as under:
- (i) **Identifying the need for benchmarking:** This step will define the objectives of the benchmarking exercise. It will also involve selecting the type of benchmarking. Organizations identify realistic opportunities for improvements.
 - (ii) **Clearly understanding existing decisions processes:** The step will involve compiling information and data on performance.
 - (iii) **Identify best processes:** Within the selected framework best processes are identified. These may be within the same organization or external to them.
 - (iv) **Comparison of own process and performance with that of others:** Benchmarking process also involves comparison of performance of the organization with performance of other organization. Any deviation between the two is analysed to make further improvements.

- (v) **Prepare a report and implement the steps necessary to close the performance gap:** A report on benchmarking initiatives containing recommendations is prepared. Such a report also contains the action plans for implementation.
- (vi) **Evaluation:** Business organizations evaluate the results of the benchmarking process in terms of improvements vis-à-vis objectives and other criteria set for the purpose. It also periodically evaluates and reset the benchmarks in the light of changes in the conditions that impact the performance.