

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

PART-I: MULTIPLE CHOICE QUESTIONS

1. (c) Operational level Information System
2. (d) Leased Application
3. (c) Business Process Reengineering (BPR)
4. (a) Communication as a Service
5. (c) Router
6. (a) Message Switching
7. (d) Work collaboratively with business partners on cross-organizational business processes.
8. (b) The Cache memory is smaller but faster memory that permanently stores the programs to be executed.
9. (b) Network Resources
10. (c) It ensures that data is made available only to the person who has right to see the same.

PART II: DESCRIPTIVE ANSWERS

1. (a) The disadvantages of Cloud Computing are as follows:
 - **Technical Issues:** This technology is always prone to outages and other technical issues. Even the best cloud service providers run into this kind of trouble, in spite of keeping up high standards of maintenance.
 - **Security in the Cloud:** Surrendering all the company's sensitive information to a third-party cloud service provider could potentially put the company to great risk.
 - **Prone to Attack:** Storing information in the cloud could make the company vulnerable to external hack attacks and threats. Nothing on the Internet is completely secure and hence, there is always the lurking possibility of stealth of sensitive data.
- (b) The prominent database models that determine different manner in which the data can be stored, organized and manipulated are as follows:
 - Hierarchical Database Model
 - Network Database Model
 - Relational Database Model
 - Object Oriented Database Model

2. (a) The benefits of Local Area Network are as follows:

- **Security** - Security for programs and data can be achieved using servers that are locked through both software and by physical means. Diskless nodes also offer security by not allowing users to download important data on floppies/CDs or upload unwanted software or virus.
- **Expanded PC usage through inexpensive workstation** - Once a LAN has been set up, it actually costs less to automate additional employees through diskless PCs. Existing PCs can be easily converted into nodes by adding network interface cards.
- **Distributed processing** - Many organizations operate as if they had distributed system in place. If numerous PCs are installed around the office, these machines represent the basic platform for a LAN with inter-user communication and information exchange.
- **Electronic mail and Message Broadcasting** - Electronic mail allows users to communicate more easily among them. Messages to other users can be dropped into the recipient's mail-box and read by them when they log into the network.
- **Organizational Benefits** - LANs provide numerous benefits that include reduced costs in computer hardware, software and peripherals, and a drastic reduction in the time and cost of training or re-training manpower to use the systems.
- **Data management benefits** - Since data is located centrally on the server, it becomes much easier to manage it, access it, as well as back it up.
- **Software cost and up-gradation** - If the organization is concerned about using licensed software purchasing, a network version can save a lot of money since there would be no need to buy multiple copies of the same software for every machine in the organization. Therefore, software upgrades are much easier as any given package is stored centrally on the server.

(b) The credit card processing will involve following steps:

- **Step 1: Authorization** – This is the first step in processing a credit card. After a merchant swipes the card, the data is submitted to merchant's bank, called an acquirer, to request authorization for the sale. The acquirer then routes the request to the card issuing bank, where it is authorized or denied, and the merchant is allowed to process the sale.
- **Step 2: Batching** – This is the second step in processing a credit card. At the end of a day, the merchant reviews all the day's sales to ensure they were authorized and signed by the cardholder. It then transmits all the sales at once, called a batch, to the acquirer to receive payment.
- **Step 3: Clearing** – This is the third step in processing a credit card. After the acquirer receives the batch, it sends it through the card network, where each sale is routed to the appropriate issuing bank. The issuing bank then subtracts its interchange fees, which are shared with the card network, and transfers the remaining amount through the network back to the acquirer.
- **Step 4: Funding** – This is the fourth and final step in processing a credit card. After receiving payment from the issuer, minus interchange fees, the acquirer subtracts its discount fee and sends the remainder to the merchant. The merchant is now paid for the transaction, and the cardholder is billed.

3. (a) The service models of Cloud Computing are as follows:

- **Infrastructure as a Service (IaaS):** It is the foundation of cloud services. It provides clients with access to server hardware, storage, bandwidth and other fundamental computing resources. The service is typically paid for on a usage basis. The service may also include dynamic scaling so that if the customer needs more resources than expected, s/he can get them on the fly or probably to a given limit. It provides access to shared resources on need basis, without revealing details like location and hardware to clients.
- **Software as a Service (SaaS):** It includes a complete software offering on the cloud. Users can access a software application hosted by the cloud vendor on pay-per-use basis. This is a well-established sector. SaaS is a model of software deployment where an application is hosted as a service provided to customers across the Internet by removing the need to install and run an application on a user's own computer. It is seen as a way for businesses to get the same benefits as commercial software with smaller cost outlay. SaaS can alleviate the burden of software maintenance and support but users relinquish control over software versions and requirements.
- **Platform as a Service (PaaS):** It provides clients with access to the basic operating software and optional services to develop and use software applications without the need to buy and manage the underlying computing infrastructure. For example, Google App Engine allows clients to run their web applications on Google's infrastructure. It has evolved from Software as a Service (SaaS) and Infrastructure as a Service (IaaS). The major drawback of Platform as a Service is that it may lock us into the use of a particular development environment and stack of software components.
- **Network as a Service (NaaS):** It is a category of cloud services where the capability provided to the cloud service user is to use network/transport connecting services. NaaS involves optimization of resource allocation by considering network and computing resources as a whole. Some of the examples are: Virtual Private Network, Mobile Network Virtualization etc.
- **Communication as a Service (CaaS):** It has evolved in the same lines as SaaS. CaaS is an outsourced enterprise communication solution that can be leased from a single vendor. The CaaS vendor is responsible for all hardware and software management and offers guaranteed Quality of Service (QoS). It allows businesses to selectively deploy communication devices and modes on a pay-as-you-go, as-needed basis. This approach eliminates the large capital investments. Examples are: Voice over IP (VoIP), Instant Messaging (IM), Collaboration and Videoconferencing application using fixed and mobile devices.

(b) Application areas where Grid Computing can be used are as follows:

- Civil engineers collaborate to design, execute, & analyze shake table experiments.
- An insurance company mines data from partner hospitals for fraud detection.
- An application service provider offloads excess load to a compute cycle provider.
- An enterprise configures internal & external resources to support e-Business workload.
- Large-scale science and engineering are done through the interaction of people, heterogeneous computing resources, information systems and instruments, all of which are geographically and organizationally dispersed.

4. (a) The success factors of Business Process Reengineering (BPR) are as follows:
- (i) **Organization wide commitment:** Changes to business processes would have a direct impact on processes, organizational structures, work culture, information flows, infrastructure & technologies and job competencies. This requires strong leadership, support and sponsorship from the top management. Top management not only has to recognize the need for change but also has to convince every affected group about the potential benefits of the change to the organization as a whole and secure their commitment.
 - (ii) **BPR team composition:** A BPR team is formed which would be responsible to take the BPR project forward and make key decisions and recommendations. The BPR team would include active representatives from top management, business process owners, technical experts and users. It is important that the teams must be kept of manageable size to ensure well-coordinated, effective and efficient completion of the entire BPR process.
 - (iii) **Business needs analysis:** It is important to identify exactly what current processes need reengineering. This would help determine the strategy and goals for BPR. A series of sessions are held with the process owners and stakeholders and all the ideas would be evaluated to outline and conceptualize the desired business process. The outcome of this analysis would be BPR project plan – identifying specific problem areas, setting goals and relating them to key business objectives. This alignment of the BPR strategy with the enterprise strategy is one of the most important aspects.
 - (iv) **Adequate IT infrastructure:** Adequate investment in IT infrastructure in line is of vital importance to successful BPR implementation. An IT infrastructure is a set of hardware, software, networks, facilities, etc., in order to develop, test, deliver, monitor, control or support IT services. Effective alignment of IT infrastructure to BPR strategy would determine the success of BPR efforts.
 - (v) **Effective change management:** BPR involves changes in people behavior and culture, processes and technologies. Hence, resistance would be a natural consequence which needs to be dealt with effectively. An effective change management process would consider the current culture to foster a change in the prevailing beliefs, attitudes and behaviors effectively. The success of BPR depends on how effectively management conveys the need for change to the people.
 - (vi) **Ongoing continuous improvement:** BPR is an ongoing process hence innovation and continuous improvement are keys to the successful implementation of BPR.
- (b) Network management functions as grouped under ISO telecommunication Management Network Model and framework for network management are as follows:
- (i) **Fault Management** - A fault is an event that has a negative significance. The goal of fault management is to recognize, isolate, correct and log faults that occur in the network. Most fault management systems poll the managed objects for error conditions and present this information to the network manager. Fault management identifies and isolates network issues, proposes problem resolution, and subsequently logs the issues and associated resolutions.
 - (ii) **Configuration Management** - Monitors network and system configuration information so that the impact on network operations (hardware and software elements) can be tracked and managed. Network changes, additions, and deletions need to be coordinated with the network management personnel.

- (iii) **Accounting Management** - Accounting management is concerned with tracking network utilization information, such that individual users, departments, or business units can be appropriately billed or charged for accounting purposes. For non-billed networks, accounting refers to administration whose primary goal is to administer the set of authorized users by establishing users, passwords, and permissions and to administer the operations of the equipment such as by performing software backup and synchronization.
- (iv) **Performance Management** - Measures and makes network performance data available so that performance can be maintained and acceptable thresholds. It enables the manager to prepare the network for the future, as well as to determine the efficiency of the current network. The network performance addresses the throughput, network response times, packet loss rates, link utilization, percentage utilization, error rates and so forth.
- (v) **Security Management** - Controls access to network resources as established by organizational security guidelines. Most network management systems address security regarding network hardware, such as someone logging into a router. Security management functions include managing network authentication, authorization, and auditing, such that both internal and external users only have access to appropriate network resources, configuration and management of network firewalls, intrusion detection systems, and security policies.

5. (a) The commercial applications of Artificial Intelligence (AI) are as follows:

Decision Support

- Intelligent work environment that will help you capture the “why” as well as the “what” of engineered design and decision making.
- Intelligent human–computer interface (HCI) systems that can understand spoken language and gestures, and facilitate problem solving by supporting organization wide collaborations to solve particular problems.
- Situation assessment and resource allocation software for uses that range from airlines and airports to logistics centers.

Information Retrieval

- AI-based Intranet and Internet systems that distil tidal waves of information into simple presentations.
- Natural language technology to retrieve any sort of online information, from text to pictures, videos, maps, and audio clips, in response to English questions.
- Database mining for marketing trend analysis, financial forecasting, and maintenance cost reduction, and more.

Virtual Reality

- X-ray–like vision enabled by enhanced-reality visualization that allows brain surgeons to “see through” intervening tissue to operate, monitor, and evaluate disease progression.
- Automated animation interfaces that allow users to interact with virtual objects via touch. E.g., medical students can “feel” what it’s like to stitch severed aortas.

Robotics

- Machine-vision inspections systems for gauging, guiding, identifying, and inspecting products and providing competitive advantage in manufacturing.

- Cutting-edge robotics systems, from micro-robots and hands and legs.
- (b) Typical life cycle of a Procure to Pay (P2P) transaction includes the following transactions:
- **Purchase requisition:** A document is prepared requesting the purchase department to place an order with the vendor specifying the quantity and time frame.
 - **Request for quote:** An invitation is sent to the vendors to join a bidding process for specific products.
 - **Quotation:** The vendors provide cost quotations for the supply of products.
 - **Purchase order:** A commercial document is issued to the vendor specifying the type, quantity and agreed prices for products.
 - **Receipts:** The physical receipt of goods and invoices.
 - **Payments:** The payments are made against the invoices.

INTERMEDIATE (IPC): GROUP – II
SECTION – B: STRATEGIC MANAGEMENT
SUGGESTED ANSWERS/HINTS

1. (A)

(i)	(ii)	(iii)	(iv)	(v)
(b)	(d)	(a)	(d)	(a)

(B) (d)

(C) (a)

(D) (c)

(E) (c)

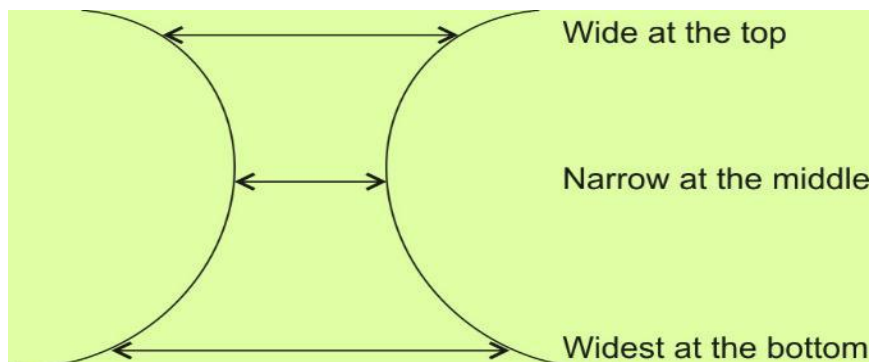
(F) (c)

(G) (d)

(H) (c)

(I) (d)

2. The Delta company is transitioning into the hourglass organization structure because it has used technological tools to transform various business processes and operations and has significantly diminished the role played by specialist managers of the middle management. The technological tool in addition to saving organizational costs by replacing many tasks of the middle management has also served as a link between top and bottom levels in the organization and assists in faster decision making. The skewed middle level managers now perform cross-functional duties. All these factors indicate towards hourglass organization structure.



3. (a) Acquisitions and mergers are basically combination strategies. Some organizations prefer to grow through mergers. Merger is considered to be a process when two or more companies come together to expand their business operations. In such a case the deal gets finalized on friendly terms and both the organizations share profits in the newly created entity. In a merger, two organizations combine to increase their strength and financial gains along with breaking the trade barriers.

When one organization takes over the other organization and controls all its business operations, it is known as acquisition. In this process of acquisition, one financially strong organization overpowers the weaker one. Acquisitions often happen during recession in economy or during declining profit margins. In this process, one that is financially stronger and bigger establishes its power. The combined operations then run under the name of the powerful entity. A deal in case

of an acquisition is often done in an unfriendly manner, it is more or less a forced association where the powerful organization either consumes the operation or a company in loss is forced to sell its entity.

- (b) Research and Development (R&D) personnel can play an integral part in strategy implementation. These individuals are generally be charged with developing new products and improving old products in a way that will allow effective strategy implementation. R&D employees and managers perform tasks that include transferring complex technology, adjusting processes to local raw materials, adapting processes to local markets, and altering products to particular tastes and specifications.

Strategies such as product development, market penetration, and concentric diversification require that new products be successfully developed and that old products be significantly improved. But the level of management support for R&D is often constrained by resource availability.

4. (a) The following are the benefits of strategic approach to managing:

- ◆ Strategic management helps organisations to be more proactive instead of reactive in shaping its future. Organisations are able to analyse and take actions instead of being mere spectators. Thereby they are able to control their own destiny in a better manner. It helps them in working within vagaries of environment and shaping it, instead of getting carried away by its turbulence or uncertainties.
 - ◆ Strategic management provides framework for all the major decisions of an enterprise such as decisions on businesses, products, markets, manufacturing facilities, investments and organisational structure. It provides better guidance to entire organisation on the crucial point - what it is trying to do.
 - ◆ Strategic management is concerned with ensuring a good future for the firm. It seeks to prepare the corporation to face the future and act as pathfinder to various business opportunities. Organisations are able to identify the available opportunities and identify ways and means as how to reach them.
 - ◆ Strategic management serves as a corporate defence mechanism against mistakes and pitfalls. It helps organisations to avoid costly mistakes in product market choices or investments. Over a period of time strategic management helps organisation to evolve certain core competencies and competitive advantages that assist in its fight for survival and growth.
- (b) 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 capability, 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 organization 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.

5. (a) Impact of IT Systems on Business Process Reengineering are identified as:

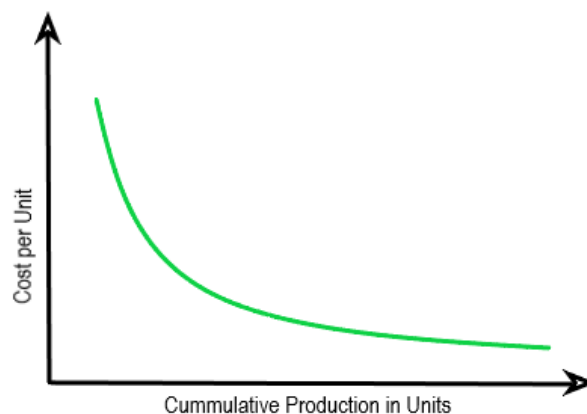
- Compression of time
- Overcoming restrictions of geography and/or distance
- Restructuring of relationships

IT initiatives, thus, provide business values in three distinct areas:

- Efficiency – by way of increased productivity
 - Effectiveness – by way of better management
 - Innovation – by way of improved products and services
- (b) Cost leadership emphasizes producing standardized products at a very low per-unit cost for consumers who are price-sensitive. Differentiation is a strategy aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price-insensitive.

A primary reason for pursuing forward, backward, and horizontal integration strategies is to gain cost leadership benefits. But cost leadership generally must be pursued in conjunction with differentiation. Different strategies offer different degrees of differentiation. A differentiation strategy should be pursued only after a careful study of buyers' needs and preferences to determine the feasibility of incorporating one or more differentiating features into a unique product. A successful differentiation strategy allows a firm to charge a higher price for its product and to gain customer loyalty.

6. (a) Experience curve is similar to learning curve which explains the efficiency gained by workers through repetitive productive work. Experience curve is based on the commonly observed phenomenon that unit costs decline as a firm accumulates experience in terms of a cumulative volume of production. It is represented diagrammatically as follows:



The implication is that larger firms in an industry would tend to have lower unit costs as compared to those of smaller organizations, thereby gaining a competitive cost advantage. Experience curve results from a variety of factors such as learning effects, economies of scale, product redesign and technological improvements in production.

The concept of experience curve is relevant for a number of areas in strategic management. For instance, experience curve is considered a barrier for new firms contemplating entry in an industry. It is also used to build market share and discourage competition.

- (b) Corporate culture distinguishes one organisation from another. It refers to a company's values, beliefs, business principles, traditions, and ways of operating and internal work environment. Every corporation has a culture that exerts powerful influences on the behaviour of managers. Culture affects not only the way managers behave within an organization but also the decisions they make about the organization's relationships with its environment and its strategy.

A culture grounded in values, practices, and behavioural norms that match what is needed for good strategy execution helps energize people throughout the company to do their jobs in a strategy-supportive manner, adding significantly to the power and effectiveness of strategy execution

Culture is both a strength and a weakness as follows:

Culture as a strength: As a strength, culture can facilitate communication, decision-making & control and create cooperation & commitment. An organization's culture could be strong and cohesive when it conducts its business according to a clear and explicit set of principles and values, which the management devotes considerable time to communicating to employees and which values are shared widely across the organization.

Culture as a weakness: As a weakness, culture may obstruct the smooth implementation of strategy by creating resistance to change. An organization's culture could be characterized as weak when many subcultures exist, few values and behavioral norms are shared and traditions are rare. In such organizations, employees do not have a sense of commitment and loyalty with the organisation.