

PAPER – 7: INFORMATION TECHNOLOGY AND STRATEGIC MANAGEMENT

SECTION – A: INFORMATION TECHNOLOGY

QUESTIONS

1. Define the following terms briefly:
 - (i) Cache Memory
 - (ii) Six Sigma
 - (iii) Task Management feature of Operating System
 - (iv) SSH File Transfer Protocol (SFTP)
 - (v) Communication Satellites
 - (vi) n-tier architecture
 - (vii) Context Diagram
 - (viii) Supply Chain Management (SCM)
 - (ix) Topological Controls under Communication Controls
 - (x) Resource Balancing in Grid Computing
2. Differentiate between the following:
 - (i) Coaxial Cable and Fiber Optics
 - (ii) Infrastructure as a Service (IaaS) and Network as a Service (NaaS)
 - (iii) Mobile Hardware and Mobile Software
 - (iv) System Flowchart and Program Flowchart
 - (v) Boxes in E-R Diagram and Diamonds in E-R Diagram
 - (vi) Plain Text and Cipher Text
 - (vii) Strategic Level Systems and Operational Level Systems
 - (viii) Example based Expert System and Frame based Expert System
 - (ix) Quality Assurance Management Controls and Security Management Controls
 - (x) Concurrent Audit and Post-Implementation Audit
3. Write short note on the following:
 - (i) Business Risks of failure of IT
 - (ii) Organizational Business Processes
 - (iii) Bluetooth
 - (iv) Advantages of Business-to-Consumer (B2C) e-Commerce
 - (v) Payroll Management
 - (vi) Batch Processing

- (vii) Travel Management Systems
- (viii) MIS - An integrated Application
- (ix) Human Resource Management System (HRMS)
- (x) Fixed Length Instructions

BPM's Principles and Practices

4. Discuss Business Process Management (BPM) Principles and Practices.

Information System Life Cycle

5. Discuss Information System Life Cycle and its phases in brief.

System Security

6. (a) Discuss the types of System Security.
(b) Distinguish between Threat and Vulnerability.

Business Reporting through MIS and IT

7. How do Business Reports streamline any business's concerns and helps in taking smarter decisions and increase the productivity of enterprises?

Accounts BPM

8. Discuss the processing cycles of an Account Business Process Management.

Business Process Automation

9. What are the three critical pillars of Business Process Automation (BPA)? Discuss in brief, the steps involved in BPA.

Mapping Systems

10. (a) Discuss different types of relationships in an E-R Diagram.
(b) Discuss advantages of using Flowchart.

Grid Computing

11. A company is reluctant to setup Grid Computing infrastructure. As a consultant, explain the management the benefits of Grid Computing.

Internet Architecture

12. Discuss Internet Architecture in brief.

Telecommunication Network Model

13. Discuss, in brief, the components of Telecommunication Network Model.

Executive Information Systems

14. Discuss Executive Information System (EIS) and its components.

Controls in BPA

15. Define Controls in Business Process Automation (BPA). Also discuss controls' objectives and their importance.

SUGGESTED ANSWERS / HINTS

1. (i) **Cache Memory:** Cache is a smaller, faster memory, which stores copies of the data from the most frequently used main memory locations so that Processor/Registers can access it more rapidly than main memory. It is the property of locality of reference, which allows improving substantially the effective memory access time in a computer system. The cache memory bridges the gap between huge speed differences of Registers and Primary Memory.
- (ii) **Six Sigma:** Six Sigma is a set of strategies, techniques, and tools for process improvement. It seeks to improve the quality of process outputs by identifying and removing the causes of defects and minimizing variability in manufacturing and business processes.
- (iii) **Task Management feature of Operating System:** Task Management in Operating system helps in allocating resources to make optimum utilization of resources. This facilitates a user to work with more than one application at a time i.e. multitasking and also allows more than one user to use the system i.e. timesharing.
- (iv) **SSH File Transfer Protocol (SFTP):** The SSH File Transfer Protocol (also known as Secure FTP or SFTP) is a computing network protocol for accessing and managing files on remote file systems. Unlike standard File Transfer Protocol, SFTP encrypts commands and data both, preventing passwords and sensitive information from being transmitted in the clear over a network.
- (v) **Communication Satellites:** Communication satellites use the atmosphere as the medium through which to transmit signals. A satellite is some solar-powered electronic device that receives, amplifies, and retransmits signals; the satellite acts as a relay station between satellite transmissions stations on the ground (earth stations). They are used extensively for high-volume as well as long-distance communication of both data and voice. It is cost-effective method for moving large quantities of data over long distances. However, satellites are very expensive to develop and place in orbit and have an age limit of 7-10 years. Signals weaken over long distances; weather conditions and solar activity can also cause noise interference. Anyone can listen in on satellite signals, so sensitive data must be sent in a secret, or encrypted, form.
- (vi) **n-tier architecture:** n-Tier Architecture is client-server architecture in which presentation, application processing, and data management functions are logically separated. By segregating an application into tiers; developers acquire the option of

modifying or adding a specific layer, instead of reworking the entire application. For example, an application that uses middleware to service data requests between a user and a database employs multitier architecture. The most widespread use of multi-tier architecture is the Three-tier architecture.

- (vii) **Context Diagram:** The Context Diagram is a high-level Data Flow Diagram (DFD) that shows the entire system as a single process and shows the interaction between the system and external agents which act as data sources and data sinks, and gives no clues as to its internal organization. The context-level DFD is next "exploded", to produce Level 1 DFDs for each process that show how the system is divided into sub-systems (processes), each of which deals with one or more of the data flows to or from an external agent, and which together provide all of the functionality of the system as a whole.
 - (viii) **Supply Chain Management (SCM):** It is a chain that starts with customers and ends with customers. Supply Chain Management may be defined as the process of planning, implementing and controlling the operations of the supply chain with the purpose of satisfying the customer's requirement as efficiently as possible. Supply Chain spans all movement and storage of raw materials, Work-in-process, inventory and finished goods from the point of origin to the point of consumption.
 - (ix) **Topological Controls under Communication Controls:** A communication network topology specifies the location of nodes within a network, the ways in which these nodes will be linked, and the data transmission capabilities of the links between the nodes. Some of the basic topologies include Bus, Ring, Star and Tree Topology.
 - (x) **Resource Balancing in Grid Computing:** For applications that are grid-enabled, the grid can offer a resource balancing effect by scheduling grid jobs on machines with low utilization. This feature of grid computing handles occasional peak loads of activity in parts of a larger organization. An unexpected peak can be routed to relatively idle machines in the grid; and if the grid is already fully utilized, the lowest priority work being performed on the grid can be temporarily suspended or even cancelled and performed again later to make room for the higher priority work.
2. (i) **Coaxial Cable:** This telecommunications media consists of copper or aluminium wire wrapped with spacers to insulate and protect it. Insulation minimizes interference and distortion of the signals the cable carries. Coaxial cables can carry a large volume of data and allows high-speed data transmission used in high-service metropolitan areas for cable TV systems, and for short-distance connection of computers and peripheral devices. These cables can be bundled together into a much larger cable for ease of installation and can be placed underground and laid on the floors of lakes and oceans. It is used extensively in office buildings and other work sites for local area networks. The only disadvantage of coaxial cable is that it is more expensive than twisted pair.

Fiber Optics: This media consists of one or more hair-thin filaments of glass fiber wrapped in a protective jacket. Signals are converted to light form and fired by laser in bursts. Optical fibers can carry digital as well as analog signals and provides increased speed and greater carrying capacity than coaxial cable and twisted-pair lines. It is not affected by electromagnetic radiation and not susceptible to electronic noise and so it has much lower error rates than twisted-pair and coaxial cable. Fiber optic cables are easy to install since they are smaller and more flexible and can be used undersea for transatlantic use. Speed of communications is 10,000 times faster than that of microwave and satellite systems.

- (ii) **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 (probably to a given limit). It provides access to shared resources on need basis, without revealing details like location and hardware to clients.

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.

- (iii) **Mobile Hardware:** Mobile Hardware includes mobile devices or device components that receive or access the service of mobility. They would range from Portable laptops, Smart phones, Tablet PC's to Personal Digital Assistants (PDA). These devices will have receptors that are capable of sending and receiving signals. These devices are configured to operate in full-duplex, whereby they are capable of sending and receiving signals at the same time.

Mobile Software: Mobile Software is the actual program that runs on the mobile hardware. It deals with the characteristics and requirements of mobile applications. This is the engine of that mobile device. In other terms, it is the operating system of that appliance. It is the essential component that makes the mobile device operates.

- (iv) **System Flowchart:** This typically depicts the electronic flow of data and processing steps in an Information System. While Document Flowcharts focus on tangible documents, system flowchart concentrates on the computerized data flows of Information systems.

Program Flowchart: It is most detailed and is concerned with the logical/arithmetic operations on data within the CPU and the flow of data between the CPU on the one hand and the input/output peripherals on the other.

- (v) **Boxes in E-R Diagram:** Boxes are commonly used to represent entities. An entity may be a 'physical object' such as a house or a car, an 'event' such as a house sale or a car service, or a 'concept' such as a customer transaction or order. The entity is represented by a rectangle and labelled with a singular noun.

Diamonds in E-R Diagram: Diamonds are normally used to represent relationships. A relationship is an association that exists between two entities. For example, Instructor teaches Class or Student attends Class. Most relationships can also be stated inversely. For example, Class is taught by Instructor. The relationships on an E-R Diagram are represented by lines drawn between the entities involved in the association.

- (vi) **Plain Text:** In Cryptography, it is the message that is to be encrypted. It is transformed by a function that is parameterized by a key.

Cipher Text: In Cryptography, it is the output of the encryption process that is transmitted often by a messenger or radio.

- (vii) **Strategic-Level Systems:** These systems are for strategic managers to track and deal with strategic issues, assisting long-range planning. A principle area is tracking changes in the external conditions (market sector, employment levels, share prices, etc.) and matching these with the internal conditions of the organization.

Operational-Level Systems: These support operational managers tracking elementary activities. These can include tracking customer orders, invoice tracking, etc. Operational level systems ensure that business procedures are followed.

- (viii) **Example based Expert System:** In Example-based system, developers enter the case facts and results. Through induction the Expert System converts the examples to a decision tree that is used to match the case at hand with those previously entered in the knowledge base.

Frame based Expert System: Frame based systems organize all the information (data, description, rules etc.) about a topic into logical units called frames, which are similar to linked records in data files. Rules are then established about how to assemble or inter-relate the frames to meet the user's needs.

- (ix) **Quality Assurance Management Controls:** Organizations are increasingly producing safety-critical systems and users are becoming more demanding in terms of the quality of the software they employ to undertake their work. Organizations are undertaking more ambitious information systems projects that require more stringent quality requirements and are becoming more concerned about their liabilities if they produce and sell defective software.

Security Management Controls: Information security administrators are responsible for ensuring that information systems assets are secure. Assets are secure when the expected losses that will occur over some time are at an acceptable level. Some of the major threats and to the security of information

systems and their controls are Fire, water, energy variations, structural damages, viruses and worms etc.

- (x) **Concurrent Audit:** In this, 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: In this, 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.

3. (i) **Business Risks of failure of IT:** The numerous stumbling-blocks that organizations face with Business Process Management Systems (BPMS) are primarily due to inadequate investment in ongoing training for involved personnel, as well as, lack of corporate policy protecting the integrity of the data in the BPM systems. Some of the other reasons for failure of BPMS include the following:
- Superficial or deficient executive involvement;
 - Deficient project management;
 - Breakdown in gap analysis;
 - Limited options for customization of the BPM software is required;
 - Not flexible enough or too complicated to be customized to meet the precise workflow and business process;
 - Failure to identify future business needs;
 - Inadequate assessment of the need for change management;
 - Persistent compatibility problems with the diverse legacy systems of the partners;
 - Resources not available when desirable;
 - Software fails to meet business needs;
 - System may be over-engineered when compared to the actual requirements; and
 - Technological obsolescence.
- (ii) **Organizational Business Processes:** Organizational business processes are high-level processes that are typically specified in textual form by their inputs, their outputs, their expected results and their dependencies on other organizational business processes. These business processes act as supplier or consumer processes. To manage incoming raw materials provided by a set of suppliers is an example of an organizational business process. While organizational business processes characterize coarse-grained business functionality, there are multiple operational business processes that contribute to one organizational business process.

- (iii) **Bluetooth:** Bluetooth is a wireless technology standard for exchanging data over short distances up to 50 meters (164 feet) from fixed and mobile devices, creating Personal Area Networks (PANs) with high levels of security. It is a feature which is used every day through a number of compatible devices. Bluetooth is really like a very low-power, short-range radio signal. Bluetooth signals are secure from the moment they're sent, so unlike any other wireless network we don't have to worry about turning on security. Few devices that utilize Bluetooth technology are Keyboards and mice, Printers, Cell phones and headsets, PDAs (Personal Digital Assistants), Desktop and laptop computers, Digital cameras, and Remotes: replacing IR (infrared). Through the use of a mobile phone with Bluetooth enabled in them, we can send pictures, videos, exchange business cards and also transfer files to our PC. Both data and voice transmissions can be sent and received through the use of short range networks.
- (iv) Advantages of B2C E-Commerce are as follows:
- Shopping can be faster and more convenient.
 - Offerings and prices can change instantaneously.
 - Call centers can be integrated with the website.
 - Broadband telecommunications will enhance the buying experience.
- (v) **Payroll Management:** It is one of the key modules under Human Resource Management Systems (HRMS) in which training programs can be entered with future dates that allow managers to track progress of employees through these programs, examine the results of courses taken and reschedule specific courses when needed. The module tracks the trainer or training organization; costs associated with training schedules, tracks training locations and required supplies and equipment and registered attendees. All employees are linked to a skills profile. The skill profile lists the skills brought with them and acquired through training after they were hired. The skills profile is updated automatically through the training module.
- (vi) **Batch Processing:** It is defined as a processing of large set of data in a specific way, automatically, without needing any user intervention. The data is first collected, during a work day, for example, and then batch-processed, so all the collected data is processed in one go. This could happen at the end of the work day, for example, when computing capacities are not needed for other tasks. It is possible to perform repetitive tasks on a large number of pieces of data rapidly without needing the user to monitor it. Batched jobs can take a long time to process. Batch processing is used in producing bills, stock control, producing monthly credit card statements, etc.
- (vii) **Travel Management Systems:** Many business processes specific to Travel Industry have been automated, including ticket booking for air, bus, train, hotel, etc.

It has features such as streamlined foreign travel approval process, configurable to match enterprise's foreign travel program, build-in and manage travel policy compliance, 'safe return' process for people tracking, traveller portal for up to date information, secure traveller profile information, online retrieval of e-tickets, reservations, visas & inoculation records, management of entry visas & medical requirements, front, mid and back office tools on a single, and web based platform.

- (viii) **MIS - An integrated Application:** Management Information System (MIS) is an integrated information system that serves all departments within an enterprise. MIS implies the use of packaged software rather than proprietary software in black and white by or for one customer.

Groundwork examination: The problem; Magnitude and scope; Alternatives; and Viability and cost effectiveness.

Requirements psychoanalysis: Knowing the primary and secondary users; Ascertaining user needs; Primary and secondary sources of information; and Design, development and implementation needs.

Systems blueprint: Inputs; Processing; Outputs; Storage; Procedures; and Human resources.

Acquirement /procurement: Compatibility; Cost effectiveness; Performance standards; After sales service; Configuration; and Portability.

- (ix) **Human Resource Management System (HRMS):** A HRMS is a software application that coalesce many human resources functions, together with benefits administration, payroll, recruiting and training, and performance analysis and assessment into one parcel. In other words, HRMS or Human Resources Information System (HRIS) refers to the systems and processes at the intersection between human resource management (HRM) and information technology. Some of the key modules of HRMS are Workforce Management, Time and Attendance Management, Payroll Management, Training Management, Compensation Management, Recruitment Management, Personnel Management, Organizational Management etc.

- (x) **Fixed Length Instructions:** Instructions are translated to machine code. In some architecture, all machine code instructions are of the same length i.e. fixed length. Fixed length instructions are commonly used with Reduced Instruction Set Computer (RISC) processors. Since each instruction occupies the same amount of space, every instruction must be long enough to specify a memory operand, even if the instruction does not use one. Hence, memory space is wasted by this form of instruction. The advantage of fixed length instructions is that they make the job of fetching and decoding instructions easier and more efficient, which means that they can be executed in less time than the corresponding variable length instructions.

4. BPM's Principles

- **Processes are assets:** BPM's first principle is **processes are assets** that create value for customers. They are to be managed and continuously improved. Because processes are assets, core processes and processes that generate the most value to customers should be carefully managed.
- **Value to customers:** A managed process produces consistent **value to customers** that entails the tasks of measuring, monitoring, controlling, and analyzing business processes. Measuring of business processes provides information regarding these business processes. Process information allows organizations to predict, recognize, and diagnose process deficiencies, and it suggests the direction of future improvements.
- **Continuous improvement:** The third principle is **continuous improvement** of processes. This is a natural result of process management. Process improvement is facilitated by the availability of process information. The business environment usually dictates that organizations need to improve to stay competitive. Business processes are central to an organization's value creation. It follows that processes should be continuously improved.

BPM's Practices

- (i) **Process-oriented organizational structure:** Processes are the core assets of an organization, and they produce the values that justify an organization's existence. In order for processes to be effectively managed and improved, BPM identifies three types of process-oriented structures - Process Organization, Case management organization and Horizontal process management organization.
- (ii) **Appoint Process Owners:** The process owners are assigned to the core processes who are responsible for the performance of the process assigned. The process owner designs, deploys, and improves the process and is responsible for influencing functional workers and functional heads on how best to perform functions associated with the process. The process owner should be a senior member of the organization who has the power to influence other senior managers.
- (iii) **Top-Down Commitment, Bottom - Up Execution:** In order for BPM to work, top management needs to commit to it and support the process-focused management approach it requires. Executing process improvement should use a bottom-up approach that encounters less resistance from the employees most directly affected by the change.
- (iv) **Use Information Technology (IT) to Manage Processes:** BPMS aligns the IT solution to be more in line with the process and once implemented, allows organizations to measure, monitor, control, and analyze processes real time.

- (v) **Collaborate with Business Partners:** It is necessary to extend process management outside the enterprise that involves sharing information with business partners and helping business partners with their business processes.
 - (vi) **Continuous Learning and Process Improvement:** In the BPM world, employees will be introduced to new technologies and work activities. In a process-focused environment, workers belong to processes and they can be expected to perform broader sets of tasks than in traditional functional organizations. BPM organizations thrive on continuous improvement.
 - (vii) **Align Employee Rewards to Process Performance:** In the BPM organization, delivering customer value and optimizing process performance are two central goals. When employee rewards are aligned to process performance, they further collaborate among workers who are engaged in the same process in order to increase the business process performance.
 - (viii) **Utilize BPR, TQM, and Other Process Improvement Tools:** Many business process experts describe BPM as the convergence of business process improvement approaches. Under the BPM approach, the previous process-focused business improvement approaches could be seen as tools for improving the processes. For example - Six Sigma (Define, Measure, Analysis, Improve, and Control (DMAIC)) could be deployed for incremental improvements.
5. **Information System Life Cycle:** This is commonly referred as Software/System Development Life Cycle (SDLC) which is a methodology used to describe the process of building information systems. It is the logical starting point in the entire life cycle of a computerized system. SDLC framework provides a sequence of activities for system designers and developers to follow. It consists of a set of steps or phases in which each phase of the SDLC uses the results of the previous one.

Phase 1: System Investigation

This phase examines that 'What is the problem and is it worth solving'? We would be doing a feasibility study under the following dimensions:

- ◆ **Technical feasibility:** Does the technology exist to implement the proposed system or is it a practical proposition?
- ◆ **Economic feasibility:** Is proposed system cost-effective: if benefits do not outweigh costs, it's not worth going ahead?
- ◆ **Legal feasibility:** Is there any conflict between the proposed system and legal requirements?
- ◆ **Operational feasibility:** Are the current work practices and procedures adequate to support the new system?
- ◆ **Schedule feasibility:** How long will the system take to develop, or can it be done in a desired time-frame?

Phase 2: System Analysis

This phase examines that 'What must the Information System do to solve the problem'? System analyst would be gathering details about the current system and will involve Interviewing staff; Examine current business; Sending out questionnaires; and Observation of current procedures.

The Systems Analyst will examine data and information flows in the enterprise using data flow diagrams; establish what the proposed system will actually do (not how it will do it); analyze costs and benefits; outline system implementation options. (e.g. in-house or using consultants); consider possible hardware configurations; and make recommendations.

Phase 3: System Designing

This phase examines that 'How will the Information System do what it must do to obtain the solution to the problem'? This phase specifies the technical aspects of a proposed system in terms of Hardware platform; Software; Outputs; Inputs; User interface; Modular design; Test plan; Conversion plan; and Documentation.

Phase 4: System Implementation

This phase examines that 'How will the Solution be put into effect'? This phase involves the following steps:

- ◆ Coding and testing of the system;
- ◆ Acquisition of hardware and software; and
- ◆ Either installation of the new system or conversion of the old system to the new one.

Phase 5: System Maintenance and Review

This phase evaluates results of solution and modifies the system to meet the changing needs. Post implementation review would be done to address programming amendments, adjustment of clerical procedures, modification of Reports, and request for new programs.

System maintenance could be with different objectives - Perfective Maintenance; Adaptive Maintenance; and Corrective Maintenance.

This is often the longest of the stages since it is an on-going process having some sort of long term continuum.

6. (a) There are two types of Systems Security.
 - **Physical Security:** A Physical security is implemented to protect the physical systems assets of an organization like the personnel, hardware, facilities, supplies and documentation.
 - **Logical Security:** A Logical security is intended protect data/information and software. Security administrators tend to have responsibility for controls over

malicious and non-malicious threats to physical security, and malicious threats to logical security itself.

- (b) **Threat:** A Threat is a possible danger that can disrupt the operation, functioning, integrity, or availability of a network or system. Network security threats can be categorized into four broad themes - Unstructured Threats, Structured Threats, External Threats and Internal Threats.

Vulnerability: Vulnerability is an inherent weakness in the design, configuration, or implementation of a network or system that renders it susceptible to a threat.

7. Business Reports streamline any business's concerns and helps in taking smarter decisions and increase the productivity.

Benefits for micro-businesses and small to medium enterprises are as follows:

- ◆ **Paperless lodgement:** Eliminates the hassle of paper work and associated costs;
- ◆ **Electronic record keeping:** Stores the reports securely in the accounting or bookkeeping system;
- ◆ **Pre-filled forms:** Reports are automatically pre-filled with information existing in the accounting or bookkeeping system, as well as from information held by government, saving valuable time;
- ◆ **Ease of sharing:** Sharing between client, accountant, tax agent or bookkeeper for checking;
- ◆ **Secure AUSkey authentication:** AUSkey is a common authentication solution for business-to-government online services.
- ◆ **Same-time validation:** receive a fast response that any lodgement has been received.

Benefits for large business are as follows:

- ◆ **A single reporting language to report to government:** eXtensible Business Reporting Language (XBRL) is an international standards-based business reporting language developed by accountants for financial reporting;
- ◆ **Reduce costs:** Reduction in the cost of assembling, analyzing, and providing data to government;
- ◆ **Streamline the process of aggregating data:** Opportunities exist for streamlining the process of aggregating data across different internal departments, or business units of a company;
- ◆ **Increased access to comparable performance information:** Standard Business Report (SBR) uses the same standard (XBRL) that simplifies and adds integrity to the performance of capital market comparisons by analysts and investors;

- ◆ **Secure AUSkey authentication:** Lodge online securely to a range of government agencies; and
 - ◆ **Same-time validation** - Rapid response that any lodgement has been received.
8. The processing cycles of an Accounts Business Process Management are namely Financing Cycle, Revenue Cycle, Expenditure Cycle, Human Resource and the General Ledger & Reporting Systems and the flow of data between them. These systems are discussed below:
- (i) **Financing Cycle:** A transaction processing cycle combines one or more types of transactions having related features or similar objectives. The cycle consists of a set of transactions leading to the recognition of a major economic event on the financial statements. It is through the study of transaction cycles that we gain a clear view of a firm's processing framework.
 - (ii) **Revenue Cycle:** It includes transactions surrounding the recognition of revenue involving accounts like Sales, Accounts Receivable, Inventory and General Ledger. It involves capturing and recording of customer orders; shipment of the goods; recording of the cost of goods sold; the billing process and the recording of sales and accounts receivable; and capturing and recording of cash receipts. Common Source Documents are Sales Order, Delivery Ticket, Remittance Advice, Deposit Slip and Credit Memo.
 - (iii) **Expenditure Cycle:** It includes transactions surrounding the recognition of expenditures involving accounts like Purchases, Accounts Payable, Cash Disbursements, Inventory and General Ledger. It includes preparation and recording of purchase orders; receipt of goods and the recording of the cost of inventory; receipt of vendor invoices; recording of accounts payable and preparation and recording of cash disbursements. The cycle also includes the preparation of employee pay-checks and the recording of payroll activities. Common Source Documents are Purchase Requisition, Purchase Order, Receiving Report, and Cheque.
 - (iv) **Human Resource Cycle:** Common Source Documents are W4 forms, Time cards and Job time tickets.
 - (v) **General Ledger & Reporting System:** Common Source Document is Journal Voucher.
 - (vi) **Data Processing Cycle:** In the Data Processing Cycle, the processes of business activities about which data must be collected and processed are identified. Further, the emphasize could be on the activities, resources affected by that event, the agents who participate in that event; where the event could be the Input, Output, Processing, Storage, Alerts, Controls and Feedback. All the above cycles of processing involves data processing activities which has been updated and stored. The stored information has details about the resources affected by the event and agents who participated in the activity.

9. Business Process Automation (BPA) solutions feature three critical pillars – **Integration**, **Orchestration**, and **Automation**. Tight coupling of these elements enables organizations to streamline and automate business processes regardless of scope, scale, and complexity. BPA application ties up the following activities:

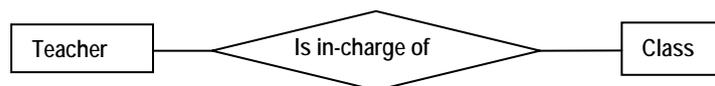
- ◆ **Integration:** BPA allows applications and operating systems not only to read data that the systems produce, but also to pass data between the component applications of the business process and to modify the data as necessary.
- ◆ **Orchestration:** The process of orchestration enables the ability to bring tasks that exist across multiple computers and different business departments or branches under one umbrella that is the business process itself.
- ◆ **Automation:** Orchestration and integration unite with automation to deliver the capability to provide a rules-based process of automatic execution that can span multiple systems and enable a more effective, nimble and efficient business process.

Steps involved in BPA

BPA can make the business processes faster and more efficient, robust, and flexible. The approach to business process automation entails understanding how information is collected and processed on a day-to-day basis and then making recommendations on how best to automate those processes for maximum benefit. The steps involved in any BPA are as follows:

- ◆ Step 1: Define why we plan to implement 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.
10. (a) The various types of relationships in E-R Diagram are as follows:
- (i) **One-to-One relationship (1:1)** - A One-to-One relationship is shown on the diagram by a line connecting the two entities.

Example: A Teacher may be in-charge of a class. Each class must be in-charge of by one teacher.



A student has one and only one Report card. Each report card is owned by one and only one student.



- (ii) **One-to-Many relationships (1:N)** – A One-to-Many relationship is shown on the diagram by a line connecting the two entities with a “crow's foot” symbol denoting the 'many' end of the relationship.

Example: A student may borrow some books from the library. A book in the library may be borrowed by at most a student.



A class is formed by a group of atleast one student. Each student is allocated to one and only one class.



Further, a teacher teaches many courses.

- (iii) **Many-to-One relationships (M:1)** – It is the reverse of One-to-Many relationship.

Example: As in two or more parent records to a single child record. For example,



When three administrators in a small town report to one minister.



- (iv) **Many-to-Many relationships (M:N)** – A Many-to-Many relationship is shown on the diagram by a line connecting the two entities with 'crow's foot' symbols at both ends.

Example: A student enrolls in atleast one course. A course is enrolled by at least one student.



A student may apply for more than one scholarship. Each scholarship may receive some applications from student, or none.



(b) Advantages of using Flowchart are as follows:

- (i) **Quicker grasp of relationships** – Before any application can be solved, it must be understood, the relationship between various elements of the application must be identified. The programmer can chart a lengthy procedure more easily with the help of a flowchart than by describing it by means of written notes.
- (ii) **Effective Analysis** – The flowchart becomes a blue print of a system that can be broken down into detailed parts for study. Problems may be identified and new approaches may be suggested by flowcharts.
- (iii) **Communication** – Flowcharts aid in communicating the facts of a business problem to those whose skills are needed for arriving at the solution.
- (iv) **Documentation** – Flowcharts serve as a good documentation which aid greatly in future program conversions. In the event of staff changes, they serve as training function by helping new employees in understanding the existing programs.
- (v) **Efficient coding** – Flowcharts act as a guide during the system analysis and program preparation phase. Instructions coded in a programming language may be checked against the flowchart to ensure that no steps are omitted.
- (vi) **Orderly check out of problem** – Flowcharts serve as an important tool during program debugging. They help in detecting, locating and removing mistakes.
- (vii) **Efficient program maintenance** – The maintenance of operating programs is facilitated by flowcharts. The charts help the programmer to concentrate attention on that part of the information flow which is to be modified.

11. Benefits of Grid Computing are as follows:

- **Making use of Underutilized Resources:** In most organizations, there are large amounts of underutilized computing resources. In some organizations, even the server machines can often be relatively idle. Grid computing provides a framework for exploiting these underutilized resources and thus has the possibility of substantially increasing the efficiency of resource usage. Grid computing (more specifically, a data grid) can be used to aggregate this unused storage into a much larger virtual data store, possibly configured to achieve improved performance and reliability over that of any single machine.

- **Resource Balancing:** For applications that are grid-enabled, the grid can offer a resource balancing effect by scheduling grid jobs on machines with low utilization. This feature of grid computing handles occasional peak loads of activity in parts of a larger organization. An unexpected peak can be routed to relatively idle machines in the grid; and if the grid is already fully utilized, the lowest priority work being performed on the grid can be temporarily suspended or even cancelled and performed again later to make room for the higher priority work.
- **Parallel CPU Capacity:** A CPU-intensive grid application can be thought of as many smaller sub-jobs, each executing on a different machine in the grid. To the extent that these sub-jobs do not need to communicate with each other, the more scalable the application becomes. A perfectly scalable application will, for example, finish in one tenth of the time if it uses ten times the number of processors.
- **Virtual resources and virtual organizations for collaboration:** Another capability enabled by grid computing is to provide an environment for collaboration among a wider audience. The users of the grid can be organized dynamically into a number of virtual organizations, each with different policy requirements. These virtual organizations can share their resources such as data, specialized devices, software, services, licenses, and so on, collectively as a larger grid.
- **Access to additional resources:** In addition to CPU and storage resources, a grid can provide access to other resources as well. For example, if a user needs to increase their total bandwidth to the Internet to implement a data mining search engine, the work can be split among grid machines that have independent connections to the Internet. In this way, total searching capability is multiplied, since each machine has a separate connection to the Internet.
- **Reliability:** High-end conventional computing systems use expensive hardware to increase reliability. The machines also use duplicate processors in such a way that when they fail, one can be replaced without turning the other off. Power supplies and cooling systems are duplicated. The systems are operated on special power sources that can start generators if utility power is interrupted. All of this builds a reliable system, but at a great cost, due to the duplication of expensive components.
- **Management:** The goal to virtualize the resources on the grid and more uniformly handle heterogeneous systems create new opportunities to better manage a larger, more distributed IT infrastructure. The grid offers management of priorities among different projects. Aggregating utilization data over a larger set of projects can enhance an organization's ability to project future upgrade needs. When maintenance is required, grid work can be rerouted to other machines without crippling the projects involved.

12. Internet Architecture

- (a) To join the Internet, the computer is connected to an Internet Service Provider (ISP) from whom the user purchases Internet access or connectivity. This lets the computer exchange packets with all of the other accessible hosts on the Internet.
- (b) A common way to connect to an ISP is to use the phone line to our house, in which case our phone company is our ISP. ISP networks may be regional, national, or international in scope. However, there are several other popular ways like DSL (Digital Subscriber Line), CMTS (Cable Modem Termination System), and POP (Point of Presence) to connect to an ISP.
- (c) Internet Service Provider's architecture is made up of long-distance transmission lines that interconnect routers at POPs in the different cities that the ISPs serve. This equipment is called the backbone of the ISP. If a packet is destined for a host served directly by the ISP, that packet is routed over the backbone and delivered to the host. Otherwise, it must be handed over to another ISP.
- (d) ISPs connect their networks to exchange traffic at IXPs (Internet eXchange Points) in cities around the world. Basically, an IXP is a room full of routers, at least one per ISP. A LAN in the room connects all the routers, so packets can be forwarded from any ISP backbone to any other ISP backbone. IXPs can be large and independently owned facilities.
- (e) The peering that happens at IXPs depends on the business relationships between ISPs. There are many possible relationships. For example, a small ISP might pay a larger ISP for Internet connectivity to reach distant hosts, much as a customer purchases service from an Internet provider.
- (f) The path a packet takes through the Internet depends on the peering choices of the ISPs. If the ISP delivering a packet peers with the destination ISP, it might deliver the packet directly to its peer. Otherwise, it might route the packet to the nearest place at which it connects to a paid transit provider so that provider can deliver the packet.
- (g) Often, the path a packet takes will not be the shortest path through the Internet. At the top of the food chain are a small handful of companies that operate large international backbone networks with thousands of routers connected by high-bandwidth fiber optic links.

Companies that provide lots of content, such as Google and Yahoo!, locate their computers in data centers that are well connected to the rest of the Internet. These data centers are so large (tens or hundreds of thousands of machines) that electricity is a major cost, so data centers are sometimes built in areas where electricity is cheap.

13. **Telecommunication Network Model:** Generally, a communication network is any arrangement where a sender transmits a message to a receiver over a channel consisting of some type of medium. The model consists of five basic categories of components:
- (i) **Terminals:** Terminals are the starting and stopping points in any telecommunication network environment. Any input or output device that is used to transmit or receive data can be classified as a terminal component. These include Video Terminals, Microcomputers, Telephones, Office Equipment, Telephone and Transaction Terminals.
 - (ii) **Telecommunications Processors:** Telecommunications Processors support data transmission and reception between terminals and computers by providing a variety of control and support functions. They include Network Interface Card, Modem, Multiplexer and Internetworked Processors such as switches, routers, hubs, bridges, repeaters and gateways.
 - (iii) **Telecommunications Media/Channels:** Telecommunications channels are the part of a telecommunications network that connects the message source with the message receiver. Data are transmitted and received over channels, which use a variety of telecommunications media. Telecommunications media are grouped into Guided Media and Unguided Media. Some of the common examples of guided media are Twisted Pair, Coaxial cable and Fiber optics. Some of the common examples of unguided media are Terrestrial Microwave, Radio waves, Micro Waves, Infrared Waves and Communications Satellites.
 - (iv) **Computers:** In a telecommunications networks, computers of all sizes and types are connected through media to perform their communication assignments. They include Host Computers (mainframes), Front-End Processors (minicomputers) and Network Servers (microcomputers).
 - (v) **Telecommunications Control Software:** This consists of programs that control telecommunications activities and manage the functions of telecommunications networks. They include Telecommunication Monitors, Network Operating Systems for network servers, Network Management Components and Communication Packages. This software can reside on almost any component of the network and can provide such features as performance monitoring, activity monitoring, priority assigning, transmission error correction and network problem mitigation.
14. **Executive Information Systems (EIS):** An Executive Information System (EIS) is the nature of Information System used by executives to access and administer the data they entail to make informed business decisions. In the hierarchical structure of information systems, the EIS is at the pinnacle and is designed to renovate all significant data (from project to process to budget) into aggregated information that makes sense and brings value to the by and large business strategy. EIS is able to link data from various sources both internal and external to provide the amount and kind of information executives find

useful. These systems are designed for top management; easy to use; present Information in condensed view; access organization's databases and data external to the organization.

The components of an EIS can typically be classified as below:

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.

15. **Controls in Business Process Automation:** Controls are defined as policies, procedures, practices and organization structure that are designed to provide reasonable assurance that business objectives are achieved and undesired events are prevented or detected and corrected.

Controls' Objectives

Major controls' objectives are given as follows:

- ◆ **Authorization** – This ensures that all transactions are approved by responsible personnel in accordance with their specific or general authority before the transactions are recorded.
- ◆ **Completeness** – This ensures that no valid transactions have been omitted from the accounting records.
- ◆ **Accuracy** - This ensures that all valid transactions are accurate, consistent with the originating transaction data, and information is recorded in a timely manner.
- ◆ **Validity** - This ensures that all recorded transactions fairly represent the economic events that actually occurred, are lawful in nature, and have been executed in accordance with management's general authorization.

- ◆ **Physical Safeguards and Security** - This ensures that access to physical assets and information systems are controlled and properly restricted to authorized personnel.
- ◆ **Error Handling** - This ensures that errors detected at any stage of processing receive prompts corrective action and are reported to the appropriate level of management.
- ◆ **Segregation of Duties** - This ensures that duties are assigned to individuals in a manner that ensures that no one individual can control both the recording function and the procedures relative to processing a transaction.

Importance of Controls in BPA

In today's computerized information systems, most of the business processes are being automated. Enterprises are increasingly relying on IT for business information and transaction processing. The innovations in IT components such as hardware, software, networking technology, communication technology and ever-increasing bandwidth are leading to evolution completely new business models.

All these new business models and new methods presume that the information required by business managers is available all the time and is accurate. However, there is a need to ensure that all information that is generated from system is accurate, complete and reliable for decision making, hence the requirement for proper controls.

SECTION – B: STRATEGIC MANAGEMENT

Correct/Incorrect with reasoning

1. State with reasons which of the following statements are correct/incorrect:
 - (a) Strategy evolves over a period of time.
 - (b) Core competence is a unique strength of an organization.
 - (c) In strategic process organizational potential is not matched with the environmental opportunities.
 - (d) Control systems run parallel with strategic levels.
 - (e) A strategic group consists of rival firms with similar competitive approaches and positions in the market.
 - (f) Strategic planning is an attempt to improve operational efficiency.
 - (g) Production strategy implements, supports and drives higher strategies.
 - (h) SBU concepts facilitate multi-business operations.
 - (i) E-commerce technology opens up a host of opportunities for reconfiguring industry and company value chains.
 - (j) Logistics is a process that integrates the flow of supplies into, through and out of an organization.

Differences between the two concepts

2. Distinguish between the following:
 - (a) Operational control and management control.
 - (b) Top-down and bottom-up strategic planning.
 - (c) Mergers and acquisitions.

Short notes

3. Write short notes on the following:
 - (a) Concept of strategic Intent
 - (b) Strategic business unit
 - (c) DMADV – A six sigma methodology
 - (d) Global strategy

Brief answers

4. Briefly answer the following questions:
 - (a) 'Kieretsu' involves sharing of purchasing, distribution and other functions. Discuss the statement in light of its advantage in a competitive environment.
 - (b) Briefly explain the role of experience curve in strategic management.
 - (c) Explain an organisation as an element of micro-environment.
 - (d) What is strategic control? Also explain briefly premise control.

Descriptive answers*Chapter 1-Business Environment*

5. The external environment holds considerable power over the organization. How?
6. Explain PESTLE as a tool for analyzing the macro environment. Illustrate your answer with environmental influences that may be considered.

Chapter 2-Business Policy and Strategic Management

7. What is meant by organizational objectives? Explain the six characteristics of organizational objectives.
8. What do you understand by 'Strategy'? Explain the four generic strategies as discussed by Glueck and Jauch.

Chapter 3-Strategic Analysis

9. A CEO of a company recently attended a seminar on strategic management. He is quite enthusiastic but does not understand how to use SWOT analysis for his Company. Act as a consultant and advise him on how to use SWOT analysis to formulate business strategies.
10. Describe the construction of BCG matrix and discuss its utility in strategic management.

Chapter 4-Strategic Planning

11. Discuss strategic alternatives with reference to Michael Porter's strategies.
12. What do you understand by the term 'Strategic uncertainty'? What is its impact on strategic planning?

Chapter 5-Formulation of Functional Strategy

13. Do you think that Management of a business house needs to formulate strategies for different functional areas when it already has developed higher level corporate and business strategies? If yes, enumerate the reasons why functional strategies are needed.
14. What do you understand by the term marketing mix? Discuss its various constituents.

Chapter 6-Strategic Implementation and Control

15. Define corporate culture. Also elucidate the statement "Culture is a strength that can also be a weakness".
16. Transformational leadership style may be appropriate in turbulent environment while transactional leadership style may be appropriate in settled environment. Comment.

Chapter 7-Reaching Strategic Edge

17. Discuss briefly the characteristics of E-commerce which have reshaped the economic landscape and altered traditional industry boundaries.
18. Define business process reengineering. Briefly outline the steps therein.

SUGGESTED ANSWERS/HINTS

1. (a) **Correct:** Strategy of a business, at a particular point of time, is result of a series of small decisions taken over an extended period of time. A manager who makes an effort to increase the growth momentum of an organization is materially changing strategy. A company strategy evolves over time as a consequence of changing environmental conditions and need to keep strategy in tune with the changes that have a bearing on the functioning of organizations..
- (b) **Correct:** A core competence is a unique strength of an organization which may not be shared by others. If business is organized on the basis of core competence, it is likely to generate competitive advantage. A core competence provides potential access to a wide variety of markets. Core competencies should be such that it is difficult for competitors to imitate them.
- (c) **Incorrect:** In the process of strategic management an organisation continuously scan its relevant environment to identify various opportunities and threats. Organisations keen to grow and expand often look for promising opportunities that match their potential. Such opportunities become a good stepping stone for achieving the goals of the organisation.
- (d) **Correct:** There are three strategic levels – corporate, business and functional. Control systems are required at all the three levels. At the top level, strategic controls are built to check whether the strategy is being implemented as planned and the results produced by the strategy are those intended. Down the hierarchy management controls and operational controls are built in the systems. Operational controls are required for day-to-day management of business.
- (e) **Correct:** A strategic group consists of those rival firms that have similar competitive approaches and positions in the market. Organisations in the same strategic group can resemble one another in any of the several ways: they may have comparable product-line breadth, sell in the same price/quality range, emphasize the same

distribution channels, use essentially the same product attributes to appeal to similar types of buyers, depend on identical technological approaches, or offer buyers similar services and technical assistance.

- (f) **Incorrect:** Strategic planning, an important component of strategic management, involves developing a strategy to meet competition and ensure long-term survival and growth. Strategic Planning is a function of top management level in the organisation and relate the organisation with its environment. Operational efficiency is not a direct outcome of strategic planning.
 - (g) **Correct:** For effective implementation of higher level strategies, strategists need to provide direction to functional managers, including production, regarding the plans and policies to be adopted. Production strategy provides a path for transmitting corporate and business level strategy to the production systems and makes it operational. It may relate to production planning, operational system, control and research & development.
 - (h) **Correct:** Organizing business along SBU lines and creating strategic business units has become a common practice for multi-product/service and global organizations. It is a convenient and intelligent grouping of activities along distinct businesses and has replaced the conventional groupings. SBU facilitates strategic planning, gaining product-related/market-related specialization, gaining cost-economies and more rational organizational structure.
 - (i) **Correct:** The impact of e-commerce technology on industry and company value chains is profound, paving the way for fundamental changes in the ways business is conducted both internally, and with suppliers and customers. Using the network to link the customers and the suppliers enables just-in-time delivery, reducing inventory costs and allowing production to match demand.
 - (j) **Correct:** Logistics is a process that integrates the flow of supplies into, through and out of an organization to achieve a level of service that facilitate movement and availability of materials in a proper manner. When a company creates a logistics strategy, it is defining the service levels at which its logistics is smooth and is cost effective.
2. (a) Differences between operational control and management control are as under:
- (i) The thrust of operational control is on individual tasks or transactions as against total or more aggregative management functions. When compared with operational, management control is more inclusive and more aggregative, in the sense of embracing the integrated activities of a complete department, division or even entire organisation, instead or mere narrowly circumscribed activities of sub-units. For example, procuring specific items for inventory is a matter of operational control, in contrast to inventory management as a whole.
 - (ii) Many of the control systems in organisations are operational and mechanistic in nature. A set of standards, plans and instructions are formulated. On the

other hand the basic purpose of management control is the achievement of enterprise goals – short range and long range – in an effective and efficient manner.

- (b) Top-down and bottom-up strategic planning: Strategic planning determines where an organization is going over the next few and ways for reaching there. The process is organization-wide, or focused on a major function such as a division or other major function. As such strategic planning is a top level management function. The flow of planning can be from corporate to divisional level or vice-versa. There are two approaches for strategic planning - top down or bottom up.

Top down strategic planning describes a centralized approach to strategy formulation in which the corporate centre or head office determines mission, strategic intent, objectives and strategies for the organization as a whole and for all parts. Unit managers are seen as implementers of pre-specified corporate strategies.

Bottom up strategic planning is the characteristic of autonomous or semi-autonomous divisions or subsidiary companies in which the corporate centre does not conceptualize its strategic role as being directly responsible for determining the mission, objectives, or strategies of its operational activities. It may prefer to act as a catalyst and facilitator, keeping things reasonably simple and confining itself to perspective and broader strategic intent.

- (c) Merger and acquisition in simple words are defined as a process of combining two or more organizations together.

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 acquisitions. 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.

3. (a) *Concept of Strategic Intent*: A company exhibits strategic intent when it relentlessly pursues an ambitious strategic objective and concentrates on allocation of all resources and take competitive actions on achieving that objective. A company's

objectives sometimes play another role – that of signaling unmistakable strategic intent to make quantum gains in competing against key rivals and establish itself as a clear-cut winner in the marketplace. A company's strategic intent can entail becoming the dominant company in the industry, unseating the existing industry leader, delivering the best customer service of any company in the industry (or the world), or turning a new technology into products capable of changing the way people work and live. Ambitious companies almost invariably begin with strategic intents that are out of proportion to their immediate capabilities and market positions. They set aggressive objectives and pursue them relentlessly, sometimes even obsessively.

- (b) **Strategic Business Unit:** A strategic business unit (SBU) is a unit of the company that has a separate mission and objectives which can be planned independently from other company businesses. SBU can be a company division, a product line within a division or even a single product/brand, specific group of customers or geographical location. The SBU is given the authority to make its own strategic decisions within corporate guidelines as long as it meets corporate objectives.
- (c) DMADV methodology is an acronym for five different steps used in six sigma directed for designing new products, processes and services.
- *Define:* As in case of DMAIC six sigma experts have to formally define goals of the design activity that are consistent with strategy of the organization and the demands of the customer.
 - *Measure:* Next identify the factors that are critical to quality (CTQs). Measure factors such as product capabilities and production process capability. Also assess the risks involved.
 - *Analyze:* Develop and design alternatives. Create high-level design and evaluate to select the best design.
 - *Design:* Develop details of design and optimise it. Verify designs may require using techniques such as simulations.
 - *Verify:* Verify designs through simulations or pilot runs. Verified and implemented processes are handed over to the process owners.
- (d) A global strategy assumes more standardization of products across country boundaries. Under this strategy, the company tries to focus on a low cost structure by leveraging their expertise in providing certain products and services and concentrating the production of these standard products and services at a few favourable locations around the world. Competitive strategy is centralized and controlled by the home office.
4. (a) *Kieretsus* is a loosely-coupled group of companies, usually in related industries. It is a Japanese term which is used for large cooperative networks of businesses. *Kieretsus* members are peers and may own significant amounts of each other's

stock and have many board members in common.

The primary purpose of a kieretsu is not to share information or agree industry standards, but to share purchasing, distribution or any other functions. In kieretsu members remain independent companies in their own right. The only strategy they have in common is to prefer to do business with other kieretsu members, both when buying and selling. The formation of kieretsu allows a manufacturer to establish, stable, long term partnerships, which in term helps them to stay lean and focus on core business requirements.

- (b) Experience curve is an important concept used for applying a portfolio approach. The concept is akin to a 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. 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.

- (c) An organisation in itself constitutes an element of its micro environment. An organisation has several non-specific elements of the organisation's surroundings that may affect its activities. These consist of organisation/groups which are as follows:
- **Owners** are individuals, shareholders, groups or organisations who have a major stake in the organisation. They have a vested interest in the well-being of the company.
 - **Board of directors** are found in companies formed under the Companies Act, 2013. The board of directors are elected by the shareholders and are charged with overseeing the general management of the organisation to ensure that it is being run in a way that best serves the shareholder's interests.
 - **Employees** are the people who actually do the work in an organisation. Employees are the major force within an organisation. It is important for an organisation that employees embrace the same values and goals as the organisation. However, they differ in beliefs, education, attitudes, and capabilities.
- (d) Strategic control involves monitoring the activity and measuring results against pre-established standards, analysing and correcting deviations as necessary and

maintaining/adapting the system. The task of control is intended to enable the organisation to continuously learn from its experience and to improve its capability to cope with the demands of organisational growth and development. It focus on the dual questions of whether (1) the strategy is being implemented as planned; and (2) the result produced by the strategy are those intended.

Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategy has been built. It primarily involves monitoring two types of factors:

- (i) Environmental factors such as economic (inflation, liquidity, interest rates), technology, social and regulatory.
- (ii) Industry factors such as competitors, suppliers, substitutes.

It is neither feasible nor desirable to control all types of premises in the same manner. Different premises may require different amount of control. Thus, managers are required to select those premises that are likely to change and would severely impact the functioning of the organization and its strategy.

5. The external environment holds considerable power over the organization both by virtue of its being more inclusive as also by virtue of its command over resources, information and other inputs. It offers a range of opportunities, incentives and rewards on the one hand and a set of constraints, threats and restrictions on the other. In both ways, the organization is conditioned and constrained. The external environment is also in a position to impose its will over the organization and can force it to fall in line. Governmental control over the organization is one such power relationship. Other organizations, competitors, markets, customers, suppliers, investors etc., also exercise considerable collective power and influence over the planning and decision making processes of the organization.

In turn, the organization itself is sometimes in a position to wield considerable power and influence over some of the elements of the external environment by virtue of its command over resources and information. The same elements which exercise power over the organization are also subject to the influence and power of the organization in some respects. To the extent that the organization is able to hold power over the environment increases its autonomy and freedom of action. It can dictate terms to the external forces and mould them to its will.

6. The term PESTLE is used to describe a framework for analysis of macro environmental factors. PESTLE analysis involves identifying the political, economic, socio-cultural, technological, legal and environmental influences on an organization and providing a way of scanning the environmental influences that have affected or are likely to affect an organization or its policy. PESTLE is an acronym for:

P-political; E-economic; S-socio-cultural; T-technological; L-legal; E-environmental

The PESTLE analysis is a simple to understand and quick to implement. The advantage of this tool is that it encourages management into proactive and structured thinking in its decision making.

The Key Factors

- **Political** factors are how and to what extent a government intervenes in the economy and the activities of corporate. Political factors may also include goods and services which the government wants to provide or be provided and those that the government does not want to be provided.
- **Economic** factors have major impacts on how businesses operate and take decisions. For example, interest rates affect a firm's cost of capital and therefore to what extent a business grows and expands. The money supply, inflation, credit flow, per capita income, growth rates have a bearing on the business decisions.
- **Social** factors affect the demand for a company's products and how that company operates.
- **Technological** factors can determine barriers to entry, minimum efficient production level and influence outsourcing decisions. Furthermore, technological shifts can affect costs, quality, and lead to innovation.
- **Legal** factors affect how a company operates, its costs, and the demand for its products.
- **Environmental** factors affect industries such as tourism, farming, and insurance. Growing awareness to climate change is affecting how companies operate and the products they offer.

On the basis of these, it should be possible to identify a number of key environmental influences, which are in effect, the drivers of change. These are the factors that require to be considered in matrix. A typical example is as follows:

<p>Political</p> <ul style="list-style-type: none"> • Political stability • Political principles and ideologies • Current and future taxation policy • Regulatory bodies and processes • Government policies • Government term and change • Thrust areas of political leaders. 	<p>Economic</p> <ul style="list-style-type: none"> • Economic situation & trends • Market and trade cycles • Specific industry factors • Customer/end-user drivers • Interest and exchange rates • Inflation and unemployment • Strength of consumer spending
<p>Social</p> <ul style="list-style-type: none"> • Lifestyle trends • Demographics 	<p>Technological</p> <ul style="list-style-type: none"> • Replacement technology/solutions • Maturity of technology

<ul style="list-style-type: none"> • Consumer attitudes and opinions • Brand, company, technology image • Consumer buying patterns • Ethnic/religious factors • Media views and perception 	<ul style="list-style-type: none"> • Manufacturing maturity and capacity • Innovation potential • Technology access, licensing, patents • Intellectual property rights and copyrights
<p>Legal</p> <ul style="list-style-type: none"> • Business and Corporate Laws • Employment Law • Competition Law • Health & Safety Law • International Treaty and Law • Regional Legislation 	<p>Environmental</p> <ul style="list-style-type: none"> • Ecological/environmental issues • Environmental hazards • Environmental legislation • Energy consumption • Waste disposal

7. Organizational objectives are performance targets-the result and outcomes it wants to achieve. They function as yardstick for tracking an organizations performance and progress. Objectives, to be meaningful to serve the intended role, must possess the following characteristics:
- ◆ Objectives should define the organization's relationship with its environment.
 - ◆ Objectives should be facilitative towards achievement of mission and purpose.
 - ◆ Objectives should provide the basis for strategic decision-making.
 - ◆ Objectives should provide standards for performance appraisal.
 - ◆ Objectives should be understandable.
 - ◆ Objectives should be concrete and specific.
 - ◆ Objectives should be related to a time frame.
 - ◆ Objectives should be measurable and controllable.
 - ◆ Objectives should be challenging.
 - ◆ Different objectives should correlate with each other.
 - ◆ Objectives should be set within constraints.

8. Strategies provide an integral framework for management and negotiate their way through a complex and turbulent external environment. Strategy seeks to relate the goals of the organisation to the means of achieving them.

Strategy may be defined as a long range blueprint of an organisation's desired image, direction and destination what it wants to be, what it wants to do and where it wants to

go. Strategy is meant to fill in the need of organisations for a sense of dynamic direction, focus and cohesiveness.

The Generic Strategies

According to Glueck and Jauch there are four generic ways in which strategic alternatives can be considered. These are stability, expansion, retrenchment and combinations.

- (i) **Stability strategies:** One of the important goals of a business enterprise is stability to safeguard its existing interests and strengths, to pursue well established and tested objectives, to continue in the chosen business path, to maintain operational efficiency on a sustained basis, to consolidate the commanding position already reached, and to optimise returns on the resources committed in the business.
 - (ii) **Expansion Strategy:** Expansion strategy is implemented by redefining the business by adding the scope of business substantially increasing the efforts of the current business. Expansion is a promising and popular strategy that tends to be equated with dynamism, vigor, promise and success. Expansion includes diversifying, acquiring and merging businesses.
 - (iii) **Retrenchment Strategy:** A business organisation can redefine its business by divesting a major product line or market. Retrenchment or retreat becomes necessary for coping with particularly hostile and adverse situations in the environment and when any other strategy is likely to be suicidal. In business parlance also, retreat is not always a bad proposition to save the enterprise's vital interests, or even to regroup and recoup the resources before a fresh assault and ascent on the growth ladder is launched.
 - (iv) **Combination Strategies:** Stability, expansion or retrenchment strategies are not mutually exclusive. It is possible to adopt a mix to suit particular situations. An enterprise may seek stability in some areas of activity, expansion in some and retrenchment in the others. Retrenchment of ailing products followed by stability and capped by expansion in some situations may be thought of. For some organisations, a strategy by diversification and/or acquisition may call for a retrenchment in some obsolete product lines, production facilities and plant locations.
9. As a consultant of a company, first of all the CEO will be explained about the concept and significance of SWOT analysis. The comparison of strengths, weaknesses, opportunities, and threats is normally referred to as a SWOT analysis.
- ◆ **Strength:** Strength is an inherent capability of the organization which it can use to gain strategic advantage over its competitors.
 - ◆ **Weakness:** A weakness is an inherent limitation or constraint of the organization which creates strategic disadvantage to it.

- ◆ **Opportunity:** An opportunity is a favourable condition in the organisation's environment which enables it to strengthen its position.
- ◆ **Threat:** A threat is an unfavourable condition in the organisation's environment which causes a risk for, or damage to, the organisation's position.

Its central purpose is to identify the strategies that will create a firm-specific business model that will best align, fit, or match an organisational resources and capabilities to the demands of the environment in which it operates. Strategic managers compare and contrast the various alternative possible strategies against each other with respect to their ability to achieve major goals and superior profitability. Thinking strategically requires managers to identify the set of strategies that will create and sustain a competitive advantage.

The significance of SWOT analysis lies in the following points:

- ◆ *It provides a Logical Framework:* SWOT analysis provides us with a logical framework for systematic and sound thrashing of issues having bearing on the business situation, generation of alternative strategies and the choice of a strategy.
- ◆ *It presents a Comparative Account:* SWOT analysis presents the information about both external and internal environment in a structured form where it is possible to compare external opportunities and threats with internal strengths and weaknesses. The helps in matching external and internal environments so that a strategist can come out with suitable strategy by developing certain patterns of relationship.
- ◆ *It guides the strategist in Strategy Identification:* SWOT analysis guides the strategist to think of overall position of the organization that helps to identify the major purpose of the strategy under focus.

SWOT analysis helps managers to craft a business model (*or* models) that will allow a company to gain a competitive advantage in its industry (*or* industries). Competitive advantage leads to increased profitability, and this maximizes a company's chances of surviving in the fast-changing, global competitive environment that characterizes most industries today.

After explaining the concept and significance of SWOT analysis, the CEO of the company should be asked to undertake the SWOT analysis of his company for knowing the strengths, weaknesses, opportunities, and threats. Further, he should be asked to compare external opportunities and threats with internal strengths and weaknesses of his company for crafting suitable strategy which matches with the company's overall objectives.

10. The BCG matrix can be used to determine what priorities should be given in the product portfolio of a business unit. Using the BCG approach, a company classifies its different businesses on a two-dimensional growth share matrix. Two dimensions are market share and market growth rate. In the matrix:

- The vertical axis represents market growth rate and provides a measure of market attractiveness.
- The horizontal axis represents relative market share and serves as a measure of company strength in the market.

Thus the BCG matrix depicts four quadrants as per following:

		Relative Market Share	
		<i>High</i>	<i>Low</i>
Market Growth Rate	<i>High</i>	Stars	Question Marks
	<i>Low</i>	Cash Cows	Dogs

Different types of business represented by either products or SBUs can be classified for portfolio analyses through BCG matrix. They have been depicted as follows:

- Stars** are products or SBUs that are growing rapidly. They also need heavy investment to maintain their position and finance their rapid growth potential.
- Cash Cows** are low-growth, high market share businesses or products. They generate cash and have low costs. They are established, successful, and need less investment to maintain their market share.
- Question Marks**, sometimes called problem children or wildcats, are low market share business in high-growth markets. They require a lot of cash to hold their share. They need heavy investments with low potential to generate cash. Question marks can become stars if properly managed, however, if left unattended they are capable of becoming cash traps.
- Dogs** are low-growth, low-share businesses and products. They may generate enough cash to maintain themselves, but do not have much future. Sometimes they may need cash to survive. Dogs should be minimised by means of divestment or liquidation.

The BCG matrix is useful for classification of products, SBUs, or businesses, and for selecting appropriate strategies for each type as follows.

- Build with the aim for long-term growth and strong future.
 - Hold or preserve the existing market share.
 - Harvest or maximize short-term cash flows.
 - Divest, sell or liquidate and ensure better utilization of resources elsewhere.
11. According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter calls these base

generic strategies. 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. Focus means producing products and services that fulfill the needs of small groups of consumers.



Figure: Michael Porter’s Generic Strategy

Cost Leadership Strategies

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. A number of cost elements affect the relative attractiveness of generic strategies, including economies or diseconomies of scale achieved, capacity utilization and linkages with suppliers and distributors and so on.

Differentiation Strategies

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 that features the desired attributes. A successful differentiation strategy allows a firm to charge a higher price for its product and to gain customer loyalty. Special features that differentiate one’s product can include superior service, spare parts availability, design, product performance, useful life, or ease of use and so on.

Focus Strategies

A successful focus strategy depends on an industry segment that is of sufficient size, has good growth potential, and is not crucial to the success of other major competitors. Strategies such as market penetration and market development offer substantial focusing advantages. Midsize and large firms can effectively pursue focus-based strategies only in

conjunction with differentiation or cost leadership-based strategies. All firms in essence follow a differentiated strategy.

12. Strategic uncertainty is that which has strategic implications and is a key construct in strategy formulation. A typical external analysis will emerge with dozens of strategic uncertainties. To be manageable, they need to be grouped into logical clusters or themes. It is then useful to assess the importance of each cluster in order to set priorities with respect to Information gathering and analysis.

Sometimes the strategic uncertainty is represented by a future trend or event that has inherent unpredictability. Information gathering and additional analysis will not be able to reduce the uncertainty. In that case, scenario analysis can be employed. Scenario analysis basically accepts the uncertainty as given and uses it to drive a description of two or more future scenarios. Strategies are then developed for each. One outcome could be a decision to create organizational and strategic flexibility so that as the business context changes the strategy will adapt.

Impact of a strategic uncertainty: Each strategic uncertainty involves potential trends or events that could have an impact on present, proposed, and even potential strategic business units (SBUs). For example, a trend toward natural foods may present opportunities for juices for a firm producing aerated drinks on the basis of a strategic uncertainty. The impact of a strategic uncertainty will depend on the importance of the impacted SBU to a firm. Some SBUs are more important than others. The importance of established SBUs may be indicated by their associated sales, profits, or costs. However, such measures might need to be supplemented for proposed or growth SBUs for which present sales, profits, or costs may not reflect the true value to a firm. Finally, because an information-need area may affect several SBUs, the number of involved SBUs can also be relevant to a strategic uncertainty's impact.

13. Yes, major corporate and business strategies need to be translated to lower levels to give holistic strategic direction to an organisation. Therefore, management formulates strategies for different functional areas owing to the following reasons:
- ◆ The development of functional strategies is aimed at making the strategies-formulated at the top management level-practically feasible at the functional level.
 - ◆ Functional strategies facilitate flow of strategic decisions to the different parts of an organization.
 - ◆ Functional strategies act as basis for controlling activities in the different functional areas of business.
 - ◆ Functional strategies reduce the time spent by functional managers in decision-making.
 - ◆ Functional strategies help in bringing harmony and coordination as they remain part of major strategies.

- ◆ Similar situations occurring in different functional areas are handled in a consistent manner by the functional managers.
14. Marketing mix forms an important part of overall competitive marketing strategy. The marketing mix is the set of controllable marketing variables that the firm blends to produce the response it wants in the target market. These variables are often referred to as the “4 Ps.” The 4 Ps stands for product, price, place and promotion.
- **Product** stands for the “goods-and-service” combination the company offers to the target market. Strategies are needed for managing existing product over time adding new ones and dropping failed products. Strategic decisions must also be made regarding branding, packaging and other product features.
 - **Price** stands for the amount of money customers have to pay to obtain the product. Necessary strategies pertain to the location of the customers, price flexibility, related items within a product line and terms of sale.
 - **Place** stands for company activities that make the product available to target consumers. One of the most basic marketing decision is choosing the most appropriate marketing channel. Strategies should be taken for the management of channel(s) by which ownership of product is transferred from producers to customers and in many cases, the system(s) by which goods are moved.
 - **Promotion** stands for activities that communicate the merits of the product and persuade target consumers to buy it. Strategies are needed to combine individual methods such as advertising, personal selling, and sales promotion into a coordinated campaign. In addition, promotional strategies must be adjusted as a product move from earlier stages from a later stage of its life.
15. The phenomenon which often distinguishes good organizations from bad ones could be summed up as ‘corporate culture’. Corporate culture refers to a company’s values, beliefs, business principles, traditions, 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.

“Culture is a strength that can also be a weakness”. This statement can be explained by splitting it in to two parts.

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 behavioural norms are shared and traditions are rare. In such organizations, employees do not have a sense of commitment, loyalty and sense of identity.

16. Two basic approaches to leadership can be transformational leadership style and transactional leadership style.

Transformational leadership style use charisma and enthusiasm to inspire people to exert them for the good of the organization. Transformational leadership style may be appropriate in turbulent environments, in industries at the very start or end of their life-cycles, in poorly performing organizations when there is a need to inspire a company to embrace major changes. Transformational leaders offer excitement, vision, intellectual stimulation and personal satisfaction. They inspire involvement in a mission, giving followers a 'dream' or 'vision' of a higher calling so as to elicit more dramatic changes in organizational performance. Such a leadership motivates followers to do more than originally affected to do by stretching their abilities and increasing their self-confidence, and also promote innovation throughout the organization.

Whereas, transactional leadership style focus more on designing systems and controlling the organization's activities and are more likely to be associated with improving the current situation. Transactional leaders try to build on the existing culture and enhance current practices. Transactional leadership style uses the authority of its office to exchange rewards, such as pay and status. They prefer a more formalized approach to motivation, setting clear goals with explicit rewards or penalties for achievement or non-achievement.

Transactional leadership style may be appropriate in settled environment, in growing or mature industries, and in organizations that are performing well. The style is better suited in persuading people to work efficiently and run operations smoothly.

17. The impact of the Internet and the rapidly emerging e-commerce environment is substantial and widespread. Growing use of the Internet by businesses and consumers reshapes the economic landscape and alters traditional industry boundaries. Characteristics of E-commerce environment changing competitive scenario are as under:
- (a) The Internet makes it feasible for companies everywhere to compete in global markets.
 - (b) There are new e-commerce strategic initiatives of existing rivals and new entrants in form of e-commerce rivals.
 - (c) Entry barriers into the e-commerce world are relatively low.
 - (d) Increased bargaining power of customers to compare the products, prices and other terms.

- (e) Possibility for business organizations to locate the best suppliers across the world to gain cost advantage and collaborate closely with them to achieve efficiency gains and cost savings.
 - (f) Internet and PC technologies are advancing rapidly, often in uncertain and unexpected directions. Such changes are often bringing in new opportunities and challenges.
 - (g) Organisations in emerging countries and elsewhere can use the internet to monitor the latest technological developments and to stay abreast of what is happening in developed markets.
 - (h) The e-commerce environment demands that companies move swiftly. In the exploding e-commerce world, speed is a condition of survival.
 - (i) E-commerce technology opens up a host of opportunities for reconfiguring industry and company value chains.
 - (j) The Internet can be an economical means of delivering customer service. Organisations are discovering ways to deliver service in a centralised manner – online or through telephone.
 - (k) The capital for funding potentially profitable e-commerce businesses is readily available.
 - (l) The needed e-commerce resource in short supply is human talent-in the form of both technological expertise and managerial know-how.
18. Business Process Reengineering (BPR) is an approach to unusual improvement in operating effectiveness through the redesigning of critical business processes and supporting business systems. It is revolutionary redesign of key business processes that involves examination of the basic process itself. BPR refers to the analysis and redesign of workflows and processes both within the organization and between the organization and the external entities like suppliers, distributors, and service providers.
- BPR involves the following steps:
1. **Determining objectives and framework:** Objectives are the desired end results of the redesign process which the management and organization attempts to achieve. This will provide the required focus, direction, and motivation for the redesign process. It helps in building a comprehensive foundation for the reengineering process.
 2. **Identify customers and determine their needs:** The designers have to understand customers – their profile, their steps in acquiring, using and disposing a product. The purpose is to redesign business process that clearly provides added value to the customer.

3. **Study the existing process:** The existing processes will provide an important base for the redesigners. The purpose is to gain an understanding of the 'what', and 'why' of the targeted process. However, some companies go through the reengineering process with clean perspective without laying emphasis on the past processes.
4. **Formulate a redesign process plan:** The information gained through the earlier steps is translated into an ideal redesign process. Formulation of redesign plan is the real crux of the reengineering efforts. Customer focused redesign concepts are identified and formulated. In this step alternative processes are considered and the best is selected.
5. **Implement the redesign:** It is easier to formulate new process than to implement them. Implementation of the redesigned process and application of other knowledge gained from the previous steps is key to achieve dramatic improvements. It is the joint responsibility of the designers and management to operationalise the new process.