

B.TECH
Regular Theory Examination, (Odd Sem)2016-17
Management Information Systems

SECTION-A

QUES-1 Attempt all parts. All parts carry equal marks. Write answer of each part in short.

(a) Define MIS. What are the components of IS?

MIS is the use of information technology, people and business processes that all work together to record, store and process data to produce information that decision makers can use to make day to day decisions.

The basic components of IS are:

- Hardware resources - Machines and media.
- Software resources - Programs and procedures.
- Network resources - Communications media and network support.
- Data resources - Data and Knowledge bases.
- People resources - End users and IS specialists.

(b) Give some examples of DSS.

- Medical diagnosis.
- Business and Management.
- Agricultural production.
- Forest Management.

(c) State the four effectiveness criteria of MIS.

- Rationality in decision-making.
- Effective MIS produces timely, accurate, clear, non-redundant and valid information.
- Quality in decisions.
- Controls are properly assured.

(d) List the functions of a MIS in terms of data processing requirements.

- Validation
- Sorting
- Summarization
- Aggregation
- Analysis
- Reporting

(e) Enumerate the attributes of DSS.

- Adaptability and flexibility.
- High level of Interactivity.
- Ease of use.
- Efficiency and effectiveness.
- Complete control by decision-makers.
- Ease of development.

(f) Compare business intelligence, analytics and MIS.

Business Intelligence refers to technologies, applications and practices for the collection, integration, analysis, and presentation of business information.

Business analytics is the practice of iterative, methodical exploration of an organization's data, with an emphasis on statistical analysis. Business analytics is used by companies committed to data-driven decision-making.

MIS refers to the processing of information through computers and other intelligent devices to manage and support managerial decisions within an organization.

(g) Identify the major challenges in implementing MIS.

- Humanistic factors
- Organizational factor
- Environmental factors

(h) Justify the need for CRM.

- A CRM system consists of a historical view and analysis of all the acquired or to be acquired customers. This helps in reduced searching and increase business.
- CRM contains each and every bit of details of a customer, hence it is very easy to track a customer accordingly and can be used to determine which customer can be profitable and which not.

(i) Enumerate the features of SCM.

- Processing Customer Requirements
- Inventory Management
- Purchase Order Processing
- Supplier Relationship Management
- Warehouse Management

(j) What is matrix organization?

A matrix organizational structure is a company structure in which the reporting relationships are set up as a grid, or matrix, rather than in the traditional hierarchy.

In other words, employees have dual reporting relationships- generally to both a functional manager and a product manager.

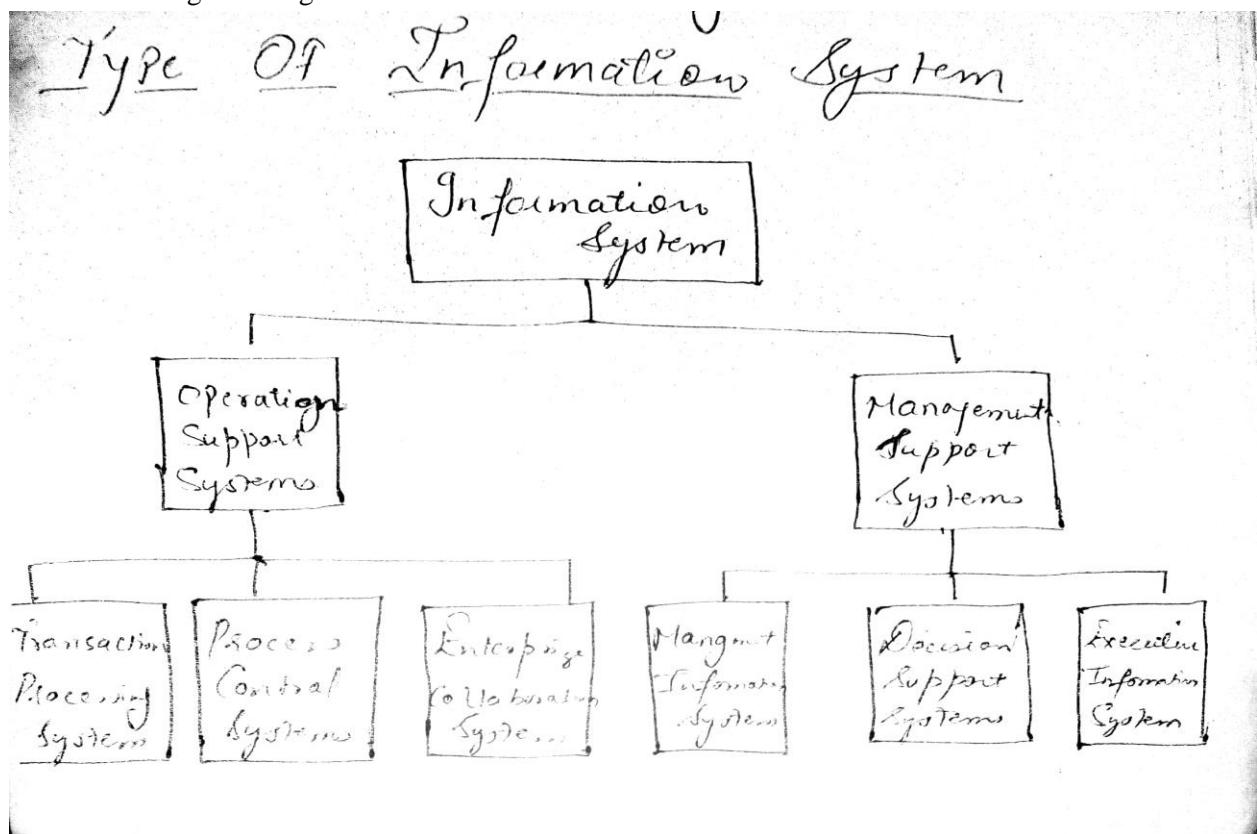
SECTION-B

QUES-2 Can MIS be helpful in information organizations? Discuss.

QUES-3 What is information system? Explain the types of information systems.

An information system is an organized combination of people, hardware, software, communication network and data resources that collects, transform and disseminate information in an organization.

An information system is defined as the software that helps organize and analyze data. So, the purpose of an information system is to turn raw data into useful information that can be used for decision making in an organization.



Operations Support Systems.

Information systems have always been needed to process data generated by, and used in, business operations.

Such operations support system produce a variety of information products for internal and external use.

The role of a business firm's operations support system is to efficiently process business transactions, control industrial processes, support enterprise communications and collaboration and update corporate databases.

→ Transaction Processing System are an important example of operations support system that record and process data resulting from business transactions.

Eg: sales and inventory processing and accounting system

They process transactions in two basic ways.

(i) Batch processing (ii) Real time.

In Batch processing, transactions data are accumulated over a period of time and processed periodically.

In Real-time processing, data are processed immediately after a transaction occurs.

Process Control Systems: monitors and control physical processes.

Eg Petroleum refinery uses electronic Sensors linked to Computer to continually monitor chemical processes and make instant adjustment that control the refinery process.

→ Enterprise Collaboration System: enhance team and Workgroup communication & productivity, and are sometimes called Office Automation System.

Eg: Knowledge Workers in a project team may use of electronic mail to send and receive electronic messages and videoconferencing to hold electronic meetings to coordinate their activities.

Management Support System

When Information System application focus on providing information and support for effective decision making by managers, they are called management Support Systems.

- * Providing information and support for decision making by all types of managers and business professionals is a complete task.
- * Conceptually, Several major types of information System support a variety of decision-making responsibilities.

- ① MIS ⑤ decision Support Systems
③ Executive Information System.

- ① MIS : Provide information in the form of prespecified reports and displays to support business decision making. Eg: Sales analysis, production performance and cost trend reporting system.
- ② Decision Support System : Provide interactive ad hoc support for the decision-making processes of managers and other business professionals.
Eg: Product pricing, profitability forecasting and risk analysis systems.
- ③ Executive Information System : Provide critical information from many sources tailored to the information needs of executives.
Eg: System for easy access to analyses of business performance, action of competitors and economic developments to support strategic planning.

QUES-4 Explain Decision Support System (DSS) with its process and characteristics.

A DSS is a computer-based information system that supports business or organizational decision making activities.

A DSS is a collection of integrated software applications and hardware that form the backbone of an organization's decision making process and help to make decisions, which may be rapidly changing and not easily specified in advance.

PROCESS :-

CHARACTERISTICS:-

- **Facilitation** : DSS facilitate and support specific decision-making activities and/or decision processes.
- **Interaction** : DSS are computer-based systems designed for interactive use by decision makers or staff users who control the sequence of interaction and the operations performed.
- **Ancillary** : DSS can support decision makers at any level in an organization. They are NOT intended to replace decision makers.
- **Repeated Use** : DSS are intended for repeated use. A specific DSS may be used routinely or used as needed for ad hoc decision support tasks.
- **Identifiable** : DSS may be independent systems that collect or replicate data from other information systems OR subsystems of a larger, more integrated information system.
- **Supports individual and group decision making** : It provides a single platform that allows all users to access the same information and access the same version of truth, while providing autonomy to individual users and development groups to design reporting content locally.
- **Decision Impact** : DSS are intended to improve the accuracy, timeliness, quality and overall effectiveness of a specific decision or a set of related decisions.
- **Task-oriented** : DSS provide specific capabilities that support one or more tasks related to decision-making, including: intelligence and data analysis; identification and design of alternatives; choice among alternatives; and decision implementation.
- **Comprehensive Data Access** : It allows users to access data from different sources concurrently, leaving organizations the freedom to choose the data warehouse that best suits their unique requirements and preferences.

QUES-5 Show how the components of MIS are interrelated. Show how an MIS can facilitate the general functions of MIS (Planning, Organization and control). Give examples.

QUES-6 Do you think that business use of the internet, intranet and extranet has changed what business people expect?

The use of the Internet, intranets, and extranets has changed what business people expect from information Technology in their jobs. Having efficient IT can help a company survive through the hardest times, and create information to better serve their company faster. It is now a standard for most companies to use Internet, intranets, extranets, and other telecommunications networks to become one of the few foundations of that organization.

Use of internet, intranets, extranets, and other telecommunications networks can dramatically cut cost, shorten business lead times and response times, support electronic commerce, improve the collaboration of workgroups, develop online operational processes, share resources, lock in customers and suppliers, and develop new products and services.

These benefits make applications of telecommunications more strategic and vital for businesses that must increasingly find new ways to compete in both domestic and global markets. If business people are able to overcome geographic, time, cost and structural barriers in a global market with constant updates to IT, it creates an everlasting demand for an updated system, so therefore it has changed what people expect in the present, and will change their expectation in the future.

For example, traveling sales people and those at regional sales offices can use the Internet, extranets, and other networks to transmit customer orders from their laptop or desktop PCs, thus breaking geographic barriers. Point-of-sale terminals and an online sales transaction processing network can break time barriers by supporting immediate credit authorization and sales processing.

Teleconferencing can be used to cut cost by reducing the need for expensive business trips, allowing customers, suppliers, and employees to participate in meetings and collaborate on joint projects without traveling. This allows business people to take advantage of the latest technology and gadgets, and receive information anywhere in the world, just by the click of a button. With these constant expanding networks, we find more and more business people connecting with each other, and using IT as a gateway to real money, and a way of life.

When the internet began growing in December 1991, it had about 10 servers. In January 2004, the internet was estimated to have more than 46 million connected servers with a sustained growth rate in excess of 1 million servers per month. In January 2007, the Internet was estimated to have over one billion users with Web sites in 34 languages from English to Icelandic. Today everyone has excess to a pc, making the pc more than a necessity in life. It makes it an obligation to do business.

QUES-7 How can information technology help a business or a firm? Strategic alliances with its customers, suppliers and others.

1. Foundation of doing business
2. Productivity
3. Strategic opportunity and advantage

1. Foundation of doing business

Most businesses today could not operate without extensive use of information systems and technologies. The organizations more specifically using e-commerce and e-business like Amazon.com, e-bay, wall-mart and such organizations would have not exist without IT. IT can help a business become a high-quality, low-cost producer and hence to increase market share. IT is vital to the development of new products.

There is a growing interdependence between a firm's information systems and its business capabilities. Changes in strategy, rules, and business processes increasingly require changes in hardware, software, databases, and telecommunications. Often, what the organization would like to do depends on what its systems will permit it to do.

Down the line five years the firm's strategic growth and profit level depends on how the company implements the IT and build the IT capabilities in the firm and hence IT acts as a Interdependence between Organizations and Information Systems. This Interdependence between Organizations and Information Systems is presented in figure 1.7.

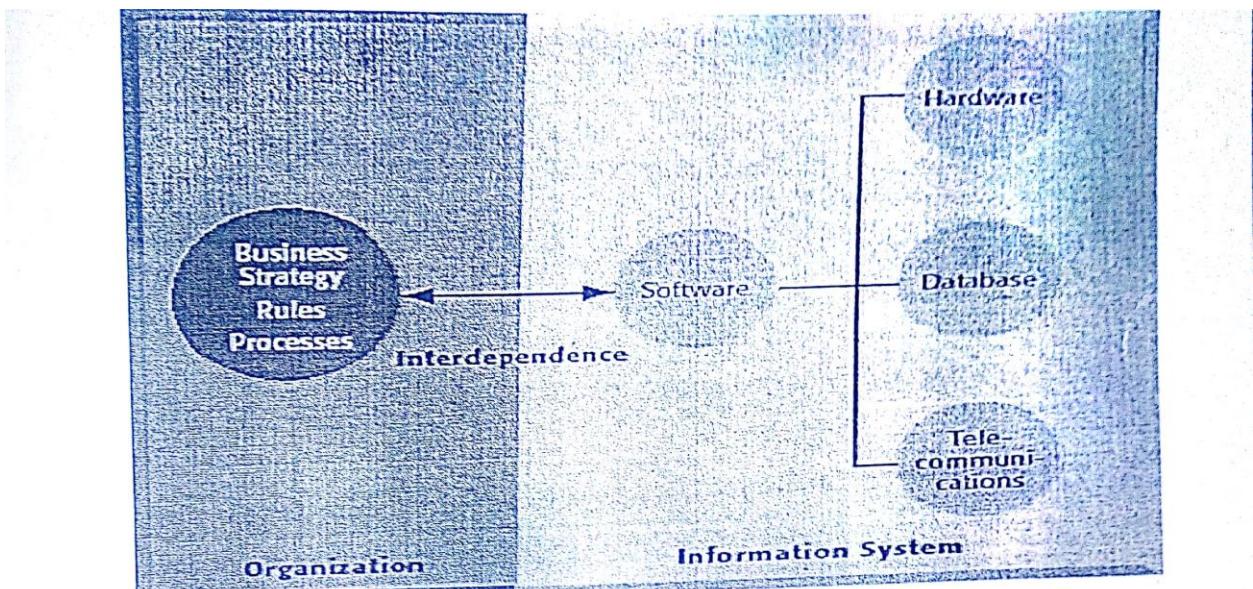


Figure 1.7. Interdependence between Organizations and Information Systems

7.2. Productivity

IT is one of the most important tools manager's uses to have increase productivity and efficiency of businesses. IT is a major factor in reducing costs. For firms, IT is a major source of labor and capital efficiency.

7.3. Strategic Opportunity and Advantage.

Information technology creates strategic opportunity and advantage to business organization. But the kind of getting the competitive advantage depends on the organizations' capability to use IT and its innovation as uniqueness in their business. Although, IT is available in the market, and immitigable by the competitors but still the organizations' capability to use IT matters more.

E.g. Dell Computers, Amazon, e-bay, Google are the some examples of the global organizations which adopted it and innovations to their business and gained competitive advantages in the market.

Further, Strategic Opportunity and Advantage may be viewed with following points.

- **Create competitive advantage:** IT makes it possible to develop competitive advantages.
- **New Business Models:** Dell Computer has built its competitive advantage on an IT enabled build-to-order business model that other firms have not been able to imitate.
- **Create new services:** IT makes it possible to ~~develop~~ Create and develop new services. E.g. E Bay has developed the largest auction trading platform for millions of individuals and businesses.
- **Differentiate the organization from the competitors:** IT and its innovation may be adopted as uniqueness in their business to differentiate the organization from the competitors. Amazon has become the largest book retailer in the United States on the strength of its huge online inventory and recommender system. Amazon, eBay, Dell, Wal-Mart and Apple's iTunes are just a few firms that have built and maintained technology-based advantages.

STRATEGIC ALLIANCE:-

Yes, Definitely information technology could help a business form strategic alliances with its customers, suppliers, and others. Essentially, Information technology can help a business form strategic alliances with its customers, suppliers, competitors, consultants, and other companies (mergers, acquisitions, joint ventures, and virtual companies). These new business linkages and alliances help firms to communicate, collaborate, and share information in ways that were never possible .By establishing strategic alliances, organizations are able to provide better quality products and services to their customers in a more efficient manner, responsive, and flexible manner.

QUES-8 Describe customer relationship management and its architecture in detail.

CRM is an information industry term for methodologies software and usually internet capabilities that help an enterprise manage customer relationship in an organized way. For example, an enterprise might built a database about its customer that describe relationship in sufficient detail. Therefore management sales people, people providing services and perhaps the customer directly could access information, match customer meet with product plan and offerings remind customer of service requirement and know what other product customer had purchased.

It is a comprehensive approach that provides seamless coordination between sales, customer service, marketing field support and other customer touching/related functions.

CRM integrates people, process and technology to maximize relationship with all your customer including e-customer, distribution channel, internal customers and suppliers.

CRM system architecture can be broken down into 3 broad categories:

1. Collaborative
2. Operational
3. Analytical

1. Collaborative

All communications between a business and its customers are recorded, organized and processed in the collaborative section of the software. This means communication by telephone, in person, and by email.

Customer relationships can be nurtured using data already provided by them which demonstrates their shopping patterns and behaviors, likes and dislikes, the times they are most likely to buy, and how much they spend on average. Businesses use this information to provide enhanced customer service, cross-sell products based on previous buying history, and offer targeted deals to segments of their customer base.

2. Operational

This category within a CRM system deals with the automation of business processes including customer service, data on competitors, industry trends, customer account information and management.

Data is collected and stored within the database, ready for use in day-to-day operations such as management of customer accounts, in addition to overall strategic planning. Detailed information about special customer needs, destined for the sales force, is also stored here. Use of this type of data further enables a business to personalize its approach to customers.

3. Analytical

Analytical CRM might result in cross-selling certain items to particular customers based on their previous buying habits, or imparting information relevant only to certain segments of a customer base.

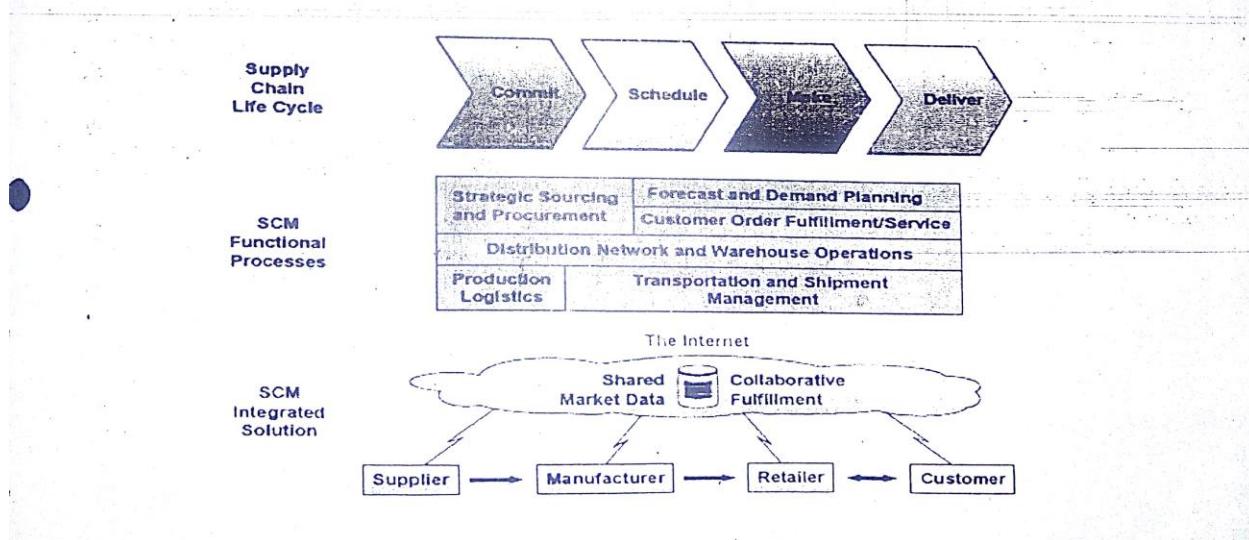
This part of the CRM architecture is also invaluable for identifying changes in the industry as a whole, so that businesses remain agile and respond quickly to changing market demands. Data can be analyzed in a number of ways, and graphs, reports and diagrams produced to better illustrate the results.

QUES-9 How does information technology help to supply chain management?

Supply chain management (SCM) is the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the supply chain firms to develop and run supply chains in the most effective & efficient ways

possible. Fundamentally, supply chain management helps a company get the right products to the right place at the right time, in the proper quantity and at an acceptable cost.

- Many companies today are using Internet technologies to create e-business systems for supply chain management that help a company streamline its traditional supply chain processes.



The paper based transaction and communication is slow. During this period, information was often overlooked as a critical competitive resource because its value to supply chain members was not clearly understood. IT infrastructure capabilities provides a competitive positioning of business initiatives like cycle time reduction, implementation, implementing redesigned cross-functional processes. Several well known firms involved in supply chain relationship through information technology. Three factors have strongly impacted this change in the importance of information.

First, satisfying in fact pleasing customer has become something of a corporate obsession. Serving the customer in the best, most efficient and effective manner has become critical.

Second information is a crucial factor in the managers' abilities to reduce inventory and human resource requirement to a competitive level. Information flows plays a crucial role in strategic planning.

In the development and maintenance of Supply chain's information systems both software and hardware must be addressed. Hardware includes computer's input/output devices and storage media. Software includes the entire system and application programme used for processing transactions management control, decision-making and strategic planning.

SECTION-C

QUES-10 Explain MIS with its organizational structure in detail.

The key elements of an organization are its people, structure, business processes, politics, and culture. An organization coordinates work through a structured hierarchy & formal standard operating procedures. Managerial, professional, and technical employees form the upper levels of the organization's hierarchy while lower levels consist of operational personnel. Information systems serve each of these levels. Scientists and knowledge workers often work with middle management and lower levels with operational personnel. Figure 1.21 shows three principal levels of manager hierarchically situated in a typical organization.

Business organization generally has hierarchies consisting of three principal levels:

1. Senior management,
2. Middle management, and
3. Operational management.

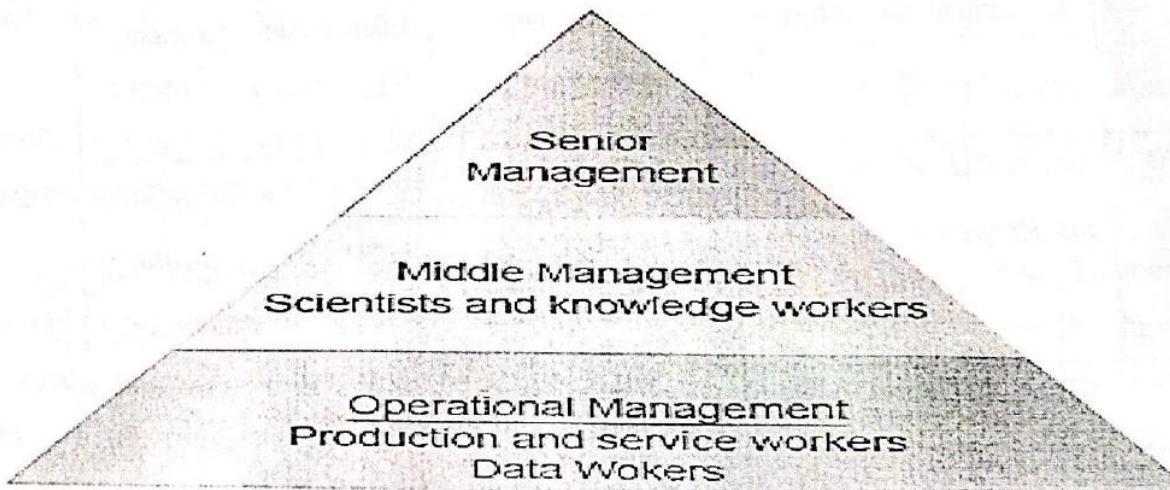


Figure 1.21 shows three principal levels of management in an organization.

Operational level people make daily, routine and programmed decisions which do not significantly affect the organization's strategic growth, while middle level management people will take tactical decisions and top level personnel shall take strategic decisions which will affect the organization's performance in the long range. Table 1.3 shows some examples of three kinds levels and associated objectives and decisions. Table 1.4 shows some examples of different functions of the organizations and associated Operations, Tactics, Strategy Decisions.

Table 1.3. Examples of three levels and associated decisions.

Decision Level	Description	Example	Type of Information
Strategic	Competitive advantage, become a market leader. Long-term outlook.	New product that will change the industry.	External events, rivals, sales, costs quality, trends.
Tactical	Improving operations without restructuring the company.	New tools to cut costs or improve efficiency.	Expenses, schedules, sales, models, forecasts.
Operations	Day-to-day actions to keep the company functioning.	Scheduling employees, ordering supplies.	Transactions, accounting, human resource management, inventory.

Table 1.4 Examples of functions and associated Operations, Tactics, Strategy Decisions.

Sector	Operations	Tactics	Strategy
Production	<ul style="list-style-type: none"> • Machine settings • Worker schedules • Maintenance sch. 	<ul style="list-style-type: none"> • Rearrange work area • Schedule new products • Change inventory method 	<ul style="list-style-type: none"> • New factory • New products • New industry
Accounting	<ul style="list-style-type: none"> • Categorize assets • Assign expenses • Produce reports 	<ul style="list-style-type: none"> • Inventory valuation • Depreciation method • Finance short/long term 	<ul style="list-style-type: none"> • New A/C system • Debt vs. equity • International taxes
Marketing	<ul style="list-style-type: none"> • Reward salespeople • Survey customers • Monitor promotions 	<ul style="list-style-type: none"> • Determine pricing • Promotional campaigns • Select marketing media 	<ul style="list-style-type: none"> • Monitor competitors • New products • New markets

Senior management makes long-range strategic decisions and ensures the firm's financial performance. Middle management carries out the plans of senior management and operational management monitors the firm's daily activities. Knowledge workers such as engineers and scientists design products and create and distribute new knowledge for the organization. Data workers such as secretaries process the organization's paperwork. Production or service workers produce the products or services.

Experts are employed for the major business functions: the specialized tasks performed by organizations, which consist of sales and marketing, manufacturing and production, finance and accounting, and human resources.

An organization coordinates work through its hierarchy and business processes. These processes may be documented and formal. Each organization has a unique culture, or fundamental set of assumptions, values, and ways of doing things, that are accepted by most of its members. Part of an organization's culture can be found in its information systems. For example, UPS's organizational focus on customer service can be found in the package tracking system available to customers.

Information system may also reflect the organizational politics or conflicts that result from differing views and opinions in an organization. Information systems are also a key component in the ability of management to make sense of the challenges facing a company and in management's ability to create new products and services. Information technology is one of the tools managers use to cope with changes.

QUES-11 What is SDLC? Explain all the phases of SDLC.

(SDLC : System Development Life (cycle))

Using the systems approach to develop information system solution can be viewed as a multistep process called Information system development cycle also known as SDLC.

Fig1 illustrates what goes on in each stage of this process which includes the steps of ① investigation ② Analysis ③ design ④ Implementation ⑤ maintenance.

* All the activities involved are highly related and interdependent. Therefore, in actual practice, several developmental activities can occur at the same time, so different parts of a development projects can be at different stages of the development cycle.

In addition, we may recycle back at any time to repeat previous activities in order to modify and improve a system we are developing.

1) System Investigation

- Determine how to address E-business opportunities and priorities.
- Conduct a feasibility study to determine whether a new or improved E-business system is a feasible solution.
- Develop a project management plan and obtain management approval.

② System Analysis.

- Analyse the information needs of employees, customers and other business stakeholders.
- Develop the functional requirements of a system that can meet E-business priorities and the needs of all stakeholders.

③ System Design

- Develop specification for the hardware, software, people, network and data resources, and the information products that will satisfy the functional requirements of the proposed E-business system.

④ System Implementation

- Acquire hardware and software.
- Test the system and train people to operate and use it.
- Convert to the new E-business system.

⑤ System Maintenance.

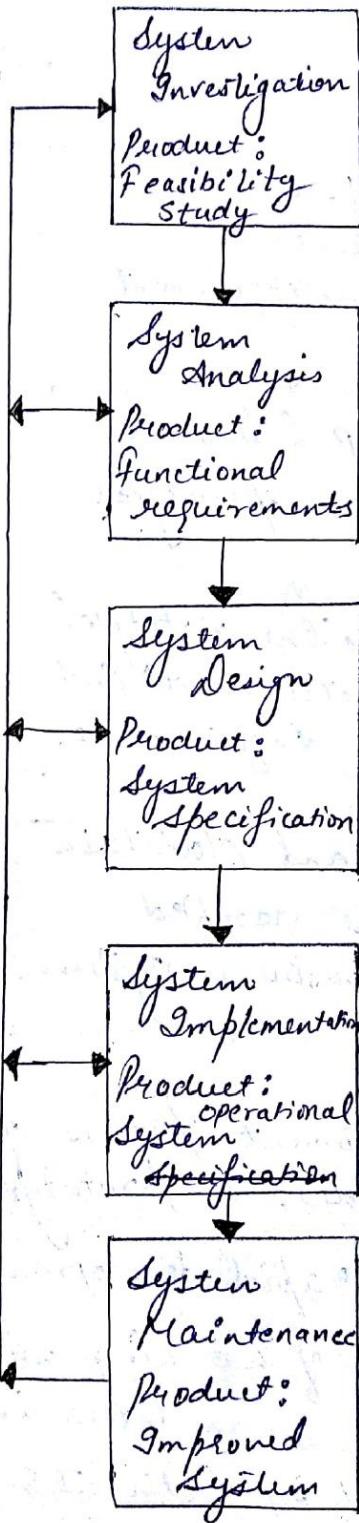
- Use a post implementation review process to monitor, evaluate and modify the E-business system as needed.

Fig 1

Understand
the
Business problem or
Opportunity

Develop an
Information System
Solution.

Implement the
Information
System
Solutions.



QUES-12 Write short notes on

(a) ERP

Enterprise resource planning (ERP) is the technological backbone of e-business, an enterprise-wide transaction framework with links into sales order processing, inventory management and control, production and distribution planning, and finance.

ERP is a cross-functional enterprise system driven by an integrated suite of software modules that supports the basic internal business processes of a company. For example, ERP software for a manufacturing company will typically process the data from and track the status of sales, inventory, shipping, and invoicing, as well as forecast raw material and human resource requirement.

ERP gives a company an integrated real-time view of its core business processes, such as production, order processing, and inventory management, tied together by the ERP application software and a common database maintained by a database management system.

ERP is very helpful in the following areas:

- Business integration and automated data update
- Linkage between all core business processes and easy flow of integration
- Flexibility in business operations and more agility to the company
- Better analysis and planning capabilities
- Critical decision-making
- Competitive advantage
- Use of latest technologies



(b) Procurement Management

Procurement management is the systematic approach used for buying all the goods and services needed for a company to stay sustainable. Manage your procurement well, and it will add value to all your business practices and save you both time and money.

The procurement process is designed to obtain a seller at most reasonable prices. The process involves waiting time for the sellers to look at the needs of the project and to respond. The process can thus, take

from one month to three months for this type of procurement. The project manager need to be involved in the entire process of procurement management and he also needs to plan for the amount of time procurements take.

The four sequential procurement management processes are:

- Plan Procurements
- Conduct Procurements
- Administer Procurements
- Close Procurements

Following a proven step-by-step technique will help management successfully achieve its goals.

Step 1: Need Recognition

The business must know it needs a new product, whether from internal or external sources. The product may be one that needs to be reordered, or it may be a new item for the company.

Step 2: Specific Need

The right product is critical for the company. Some industries have standards to help determine specifications. Part numbers help identify these for some businesses. Other industries have no point of reference. The company may have ordered the product in the past. If not, then the business must specify the necessary product by using identifiers such as color or weight.

Step 3: Source Options

The business needs to determine where to obtain the product. The company might have an approved vendor list. If not, the business will need to search for a supplier using purchase orders or research a variety of other sources such as magazines, the Internet or sales representatives. The company will qualify the suppliers to determine the best product for the business.

Step 4: Price and Terms

The business will investigate all relevant information to determine the best price and terms for the product. This will depend on if the company needs commodities (readily available products) or specialized materials. Usually the business will look into three suppliers before it makes a final decision.

Step 5: Purchase Order

The purchase order is used to buy materials between a buyer and seller. It specifically defines the price, specifications and terms and conditions of the product or service and any additional obligations.

Step 6: Delivery

The purchase order must be delivered, usually by fax, mail, personally, email or other electronic means. Sometimes the specific delivery method is specified in the purchasing documents. The recipient then acknowledges receipt of the purchase order. Both parties keep a copy on file.

Step 7: Expediting

Expedition of the purchase order addresses the timeliness of the service or materials delivered. It becomes especially important if there are any delays. The issues most often noted include payment dates, delivery times and work completion.

Step 8: Receipt and Inspection of Purchases

Once the sending company delivers the product, the recipient accepts or rejects the items. Acceptance of the items obligates the company to pay for them.

Step 9: Invoice Approval and Payment

Three documents must match when an invoice requests payment - the invoice itself, the receiving document and the original purchase order. The agreement of these documents provides confirmation from both the receiver and supplier. Any discrepancies must be resolved before the recipient pays the bill. Usually, payment is made in the form of cash, check, bank transfers, credit letters or other types of electronic transfers.

Step 10: Record Maintenance

In the case of audits, the company must maintain proper records. These include purchase records to verify any tax information and purchase orders to confirm warranty information. Purchase records reference future purchases as well.