1. List the types of Information system? Explain in brief Module no. 1 (10M)

Information systems that are used in todays' business world can be broadly classified into two types:

Operations Support System

The role of operations support system is to process business transactions, control industrial processes, support enterprise communications and collaborations and update corporate database efficiently.

- **Transaction processing systems** are Important examples of operation support system that record and process the data collected from business transactions. For example, point-of-sale (POS) systems at many retail stores use electronic cash register terminals to capture and transmit sales data electronically over telecommunication network to computer centres for processing.
- **Process control systems** monitor and control physical processes in any organization. For example, a petroleum refinery uses electronic sensors linked to computers to monitor chemical processes continuously and make instant adjustments to control the refinery process.
- **Enterprise collaboration systems** focus on enhancing team and work-group communications and productivity and include applications that are sometimes called as office automation system. For example, members in a project team use e-mail to send and receive any messages or use video conferencing to hold meetings to co-ordinate their activities.

Management Support System

When information system focuses on providing information and for effective decision making by managers, they are called management support systems. It is a complex task. Several major types of information systems support avariety of decision-making responsibilities such as Management Information Systems (MIS), Decision Support Systems (DSS), Executive Information Systems (EIS).

- **Management Information System (MIS)** provides information in the form of reports to managers and business professionals. For example, sales managers use their computers to receive instant displays about the sales results of their products and then access their corporate intranet for daily sales analysis reports that evaluate sales made by each salesperson.
- **Decision Support Systems (DSS)** give direct support to managers during the decision-making process. For example, an advertising manager may use a DSS to perform an analysis as part of the decision to determine how to spend advertising budget; a production manager may use a DSS to decide how much product to manufacture based on the expected sales and the availability of the raw materials.
- **Executive Information Systems (EIS)** provide critical information from a wide variety of internal and external sources to the executives and managers. For example, top executives can instantly view computer displays that highlight key areas of organisational and competitive performance.

2. Discuss competitive advantage achieved in Information System -- Module no.1 (10M)

Ans. Information system has made a huge impact on business-organizations. It has brought a paradigm shift in the way businesses are done. Organizations can no longer afford to ignore information system. Let us have a look at some of the areas where it has made a difference:

- **Better flow of information**: Information system has streamlined the flow of information within the organization. Information related with the status of a particular work, productivity and the performance of the workforce is available easily. There is clear and quick information on the market conditions, government policies and laws, and competitor's next move. All this facilitates better action on the part of the management.
- **Improves transaction processing**: Information system has resulted in better transaction processing, which not only saves valuable time but also improves the accuracy of data and information and that too at reduced cost. All the transactions of any nature are instantly recorded and processed which help the organization in getting useful information about business processes.
- **Supports decision making**: One of the best advantages of information system is the improved decision making. Relevant, accurate and timely information helps the management in better analysis of a problem which results into taking right decision at the right time. Right decisions help an organization in overcoming problems and grabbing opportunities.
- **Supports workgroup and team activity**: Information system provides centralized information to workgroups and teams at the right time. It facilitates better communication and information sharing between members. E-messaging and video conferencing help a team discuss problems and plans without physical presence of all the members at one place.
- **Improves quality of goods and services:** Availability Of information all the time helps an organization in having better control over the production of goods and services to the customers and clients. The production scheduling is maintained in such a way as to avoid delays. Services are offered at the right time, which improves customer satisfaction.
- **Provides executive support:** The top executives Of an organization always have the required information about different business aspects, be it the production Status or sales condition or problem areas. All this helps them analyze conditions better, and take corrective measures and plan their next step.
- **Provides effective data management**: Information systems store and process a variety of data related to business. The data are then analyzed in various ways which allows the management to identify critical areas of business. Data management helps in formulating the right policies and plan action in different conditions.
- **Improves competitiveness:** Information system helps an organization in becoming more effective and efficient. It helps in utilizing the available resources better which improves the overall operations making them more cost effective. All this improves an organization's competitiveness.

3. Explain the architecture of Data mart and Data warehouse in an organization. - Module no.2 (10M)

Ans. The basic block diagram of a Data warehouse and DataMart architecture is shown in Fig includes:

- The source systems that provide data to the data warehouse or datamart.
- The data-integration technology and processes that prepare the data for use.
- Different architectures for storing data in an organization's Data warehouse or datamarts.
- Different tools and applications for the variety of users.
- Metadata, data quality and governance processes that ensure that the warehouse or mart meets its purpose.

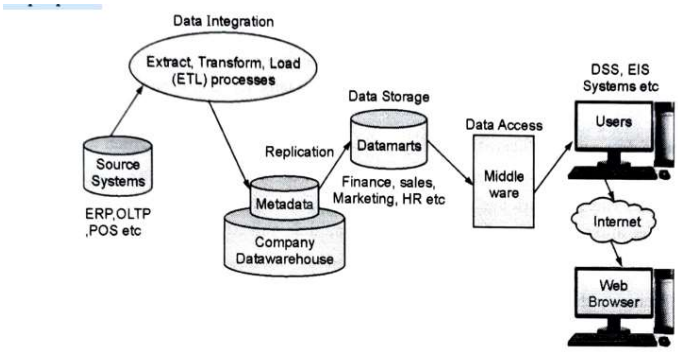

Fig. 2.5.2 : Architecture of a Data warehouse

As shown in the Fig, let us have a look at the components and their functions in a Data warehouse architecture.

- **Data Extraction:** In this step, data is collected from various heterogenous sources both external and internal to the organization.
- **Data Cleaning:** In data cleaning, the errors in data are found and simultaneously corrected.
- **Data Transformation**: In this step data is converted into a format to be stored in Data warehouses, which was previously stored in a format suitable for legacy systems.
- **Data Loading**: Data Loading involves various functions performed such as sorting, summarizing, consolidating, checking integrity, and building indices and partitions.
- **Refreshing:** This step deals with updating data from data sources to Data warehouse.

There are different types of data warehouse applications such as

- **Information Processing:** Various data processing functions like querying, statistical analysis, reporting using tables, charts, or graphs is supported by Data warehouses.
- **Analytical Processing:** The data within warehouses can be analyzed by means of basic OLAP operations, such as slice-and-dice, drill down, drill up, and pivoting.
- **Data Mining:** Data mining can also be performed on Data warehouses. It supports knowledge discovery by finding hidden patterns and associations, constructing analytical models, performing classification and prediction.

The benefits of Data warehouses are listed below

- End users can obtain a consolidated view of organizational data.

- The data for analysis can be accessed more faster and easily as it is accumulated at a central location
- Broad range of data analysis operations are possible with Data warehouses, which was previously not possible
- These operations can help improve business knowledge, provide competitive advantage, enhance customer service and satisfaction, facilitate decision making, and streamline business processes

Inspire of their benefits, Data warehouses have few drawbacks

- First and foremost, they are very expensive to build and to maintain hence only very large enterprises where huge amounts of data are generated can afford it.
- Secondly, integrating data from obsolete mainframe systems can be very difficult and expensive.
- Thirdly, different departments within an enterprise might be hesitant to share their data with other departments.

4. **Discuss the Impact of Bl on Decision Making. Module no.2 (10M)**

Ans. Decision Support Systems DSSs) combine models and data with the intent to analyze semi structured problems and some unstructured problems that involve extensive user involvement.

Models are simplified representations, or abstractions, of reality. DSSs allow data analysts to access data, manipulate it and perform analysis on it. DSSs perform sensitivity analysis, what-if analysis, and goal-seeking analysis. Let us see what is each one of these.

- **Sensitivity Analysis :** Sensitivity analysis is the study of the impact that changes in one or more input parameters have on the output parameters.
  There are two types of input variables: decision variables and environmental variables. "What is our threshold for reordering raw materials?" is a decision variable. "What is the GST percentage?" is an environmental variable .Based on the analysis of the input variables ,output variable is determined. As in this case the total cost of raw materials is the output desired. Sensitivity analysis is extremely important because it enables the system to adapt to changing environmental conditions and to the varying requirements of different decision-making situations.
- **What-if Analysis :** What-if analysis helps in predicting the impact of change in one or more input variables on the proposed solution. For example, what will happen to the total inventory cost if the originally assumed cost of carrying inventories is 15 percent rather than 12 percent? BI systems help data managers to ask such questions to the DSSs and get the responses appropriately.
- **Goal-Seeking Analysis** : Goal-seeking analysis tries to calculate the value of the inputs necessary to achieve a desired level of output. Say, for example the BI analysis initially predicted a profit of Rs.1 crore for the company. The manager might want to know how much sales quantity should be increased too get a profit of Rs.2 crores. For achieving this, various parameters need to be adjusted like increase in funding, lower product costs ,enhance advertising efforts etc.

5. Discuss the significance of social computing in marketing in detail. Module no.4 (10M)

Marketing can be defined as the process adopted by business organizations for showcasing and promoting their products and services.

- It focuses on strategies to achieve customer loyalty and build profitable customer relationships.
- Initially the business organization has to identify the target market segment and then build strategies to understand and fulfil their needs.
- What kind of messages will attract the customer and how they can be propagated all over on social media say through promotional mails, web ads, viral marketing or some other technique.
- Social computing can be used in two ways to support marketing: advertising and market research.

Advertising

1. Social advertising is that form of advertising that makes use of social information on social networks for targeting and delivering advertising content.
2. This is not any explicit way of advertising but very generally peer pressure or a friend endorsing or recommending a product, or any other form of social influence. So, here the customers themselves become a medium of promoting the product.
3. Placing advertisements on dominant portals and social networking websites where the visitor traffic is high is another way of marketing the product to large number of customers.
4. Word of mouth or Viral marketing advertising where businesses also use social media to identify who are the potential customers and convince them to spread positive messages about their products or services.
5. Companies offer special discounts, better deals or referral points to customers who socially influence others to purchase the product.
6. Social networking websites also provide ways to advertise in social media.
7. For example, Facebook lets a company create its business page, including a store that attracts fans and lets them meet other customers and then advertise the Facebook store.
8. Twitter lets business organizations to tweet their success stories to customers.

Market Research

In the older days collecting customer demographics for marketing purpose was very time consuming because the marketing people had to go to the customer and convince them to provide the same.

- But in these modern times the things have changed completely. People become members of social networks and voluntarily submit their information to the websites.
- Since everything is open on the social web, sellers can easily find the potential customers interested in their products.
- Conversational marketing is an effective tool for promoting the products. These tools enable customers to provide feedback via blogs, wikis, online forums, and social networking sites. Since here social relationships are used for marketing, it becomes a very successful, faster as well as cheaper tool for marketing.
- Social computing is not restricted to businesses that collect research but demographic information for market even customers can use it for carrying out market research before buying availing a service. a product or another solution
- For example : Users carry out preferences complete survey of cars on Cars.com based on their choices and before buying the car.

6. What are major security threats to the information system? Discuss the measures taken to control information security. – Module no.3 (10M)

Ans. To safeguard the critical information within the organization many security controls are being implemented.

All the aspects of an information system including hardware, software, data and networks need to be protected using various countermeasures.

The three major types of controls include physical controls, access controls, and communications controls. Fig illustrates these controls.

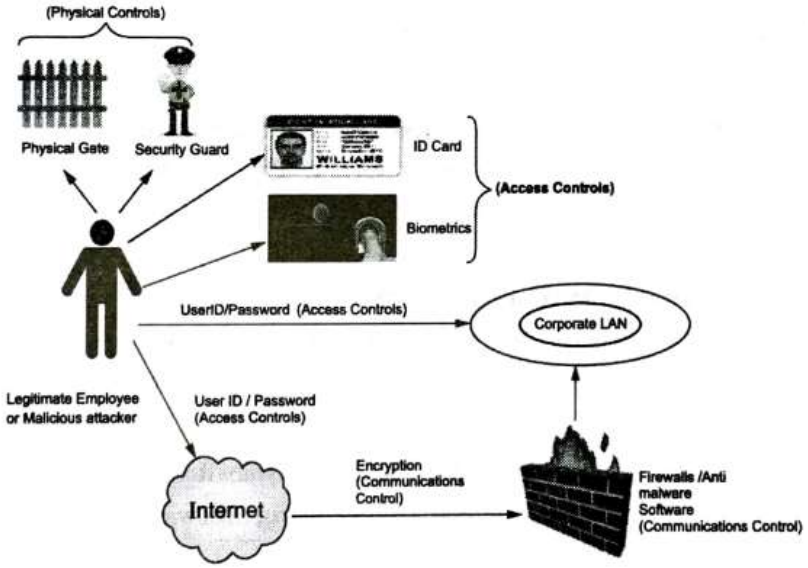

Fig. 3.3.4 : Types of Security Controls

Physical Controls

- Physical controls are applied to prevent unauthorized access to a company's confidential information.
- Common physical controls include physical gates, security guards and alarm systems.
- Such type of controls also keeps a check that the employees log off their systems when they leave the office.

Access Controls

- Access controls also avoid unauthorized access to organizational information .Common access controls include: authentication and authorization. Authentication is a process to check the identity of the person before giving him access to confidential data. Authentication method involve IDs and passwords, biometrics etc.
- Biometric is a method of human identification based on his physical characteristics such as fingerprint recognition, face recognition, iris recognition etc.

- Once an individual is authenticated then is applied the process of authorization. Authorization decides what kind of privileges and access rights is given to the individual based on his identity.

Communications Controls

- Communications controls deal with various network controls. They deal with secure transfer of data over the network. Communications controls consists of firewalls, anti-malware systems, encryption, virtual private networks(VPNs), secure socket layer(SSL) / transport layer security(TIS), and employee monitoring systems.
- Firewalls : A firewall is a system that filters the information that should enter corporate LAN from untrusted outside world through the internet. The filtration depends upon rules defined within the firewall. It prevents unauthorized users to access companys private network over the internet.
- Anti-malware Systems : Anti-malware systems commonly known as antivirus software identify and remove viruses and worms. They are installed on corporate systems. Most widely used anti viruses include McAfee, Norton antivirus, Quick Heal etc

Whitelisting and Blacklisting

- Whitelisting allows only permitted softwares or websites to run on corporate systems i.e. those which are whitelisted whereas Blacklisting allows all the softwares and websites except those on the blacklist.
- For example, a company might blacklist porn websites so that employees do not indulge into unfair activities or may restrict peer-to-peer file sharing on its systems.

Encryption

- It is the of converting a plaintext (original message) into ciphertext (form which cannot be understood by anyone except the intended recipient). Encryption systems use keys which are used for encoding and decoding the messages.
- Common type of encryption method used is Public-key encryption which is an asymmetric key encryption i.e it makes use of two sets of keys-public and private for encryption and decryption process. Usually public key is known to all whereas private key is kept secret.
- There are third party verification authorities also called as Certification Authority (CA) such as Verisign, which issue digital certificates to organizations.
- These digital certificates act as an identity proof for an organization and are valid for a particular period. Having a certificate from a CA ensures that the company is genuine and transactions carried out with such organizations are verified and safe.

Secure socket layer protocol

- It is also called as Transport Layer Security (TLS).
- TLS encrypts and decrypts data between a Web serve and a browser. Any website using TLS has the URL beginning with "https" rather than "http," and it often displays a small padlock icon in the browser's status bar. Padlock icon indicates secure connection.

Employee monitoring systems

- They are a kind of surveillance systems that monitor the activities of employees like their usage of office computer systems, their e-mail activities, Internet surfing activities.
- These systems are implemented by corporates as a step to avoid unethical behaviour as well as avoiding and tracking employee mistakes
- With the help of such systems, company authorities can easily identify employees who spend too much time surfing on the Internet for personal reasons or who visit questionable websites.

7. What are the potential benefits of social commerce to the customers and to the business? - Module no.4 (10M)

- The social platform has become a very significant marketing tool for businesses to make their brand awareness.
- They can easily advertise and market their products through user generated content, for example, through reviews or even via viral marketing by sharing of promo links among friends.
- New products can be discussed and innovative ideas can be shared between business partners through communication within virtual communities.
- They can understand the customer needs more appropriately through feedbacks, reviews and ratings on the business website or other platforms like Twitter and Facebook.
- Increased sales and motivation for developing new and better products when customers give positive feedback on the social networking sites.
- Negative feedbacks hep the business organizations to improvise on the quality of product and service in order to retain their image and reputation in the market.

Benefits to Customers

- Customers' expectations can be fulfilled faster and in a complete manner as the social platform is open for interactions.
- Customers browsing experience is enhanced as better searching, filtering, chatting facilities are available.
- Better decision making while buying a product by analysing the reviews and ratings given by other customers who have already bought the product.
- One customer can support the other through online forums.
- Customer complaints are handled very quickly because disgruntled customers can defame the business organization by giving negative feedback on social platforms like Twitter, Facebook or any other consumer complaint forum.

Problems of Social Computing

Inspire of all of its benefits, social computing does face some problems.

- Negative feedback from unhappy customers about a company's produet and/or services may have harmful impact on the sales of the company.
- The company's competitors may also purposely post wrong reviews about the company's products on their business pages on social networking sites to defame them. The company should be ready to face these glitches and handle them properly.
- The company cannot even block such competitors or customers neither can they delete tha comments because this might create suspicion in the minds of the other customers.

8. What are the functional areas of the Information system? Explain in detail. - Module no.1 I (10M)

Ans. Within an organization, every department incorporates its own set of application programs and information systems. These systems are commonly known as Functional Area Information Systems (FAISs).

As the name implies these FAISs support business processes of a specific functional area within the organization quite efficiently.

Typical FAISs are production management information systems, accounting and finance information systems, marketing and sales information systems, human resource information systems etc.

Activities Supported by Functional Area Information Systems

Accounting and Finance

- Accounting and Finance information systems help in financial planning and budgeting.
- They help in allocating financial resources appropriately to various activities within the organization.
- They support organizational investment management in stocks and bonds.
- These systems also facilitate budgetary control by comparing overall expenditures with the incoming cashflows.
- They also deal with managing the payroll of the employees.
- Also as a part of accounting and finance information systems, regular financial auditing is car Tied out to monitor organization's financial health.

Marketing and Sales

- Marketing and sales information systems help in maintaining customer profiles and their choices and preferences.
- Based on the customer preferences these systems can better handle their customers, satisfy their needs, maintain good customer relations and thereby help in customer retention.
- Sales automation software's are used to automate the business processes of sales, thus improving the productivity of sales representatives.
- They also deal with planning of Advertising campaigns for promoting the products.

Production/Operations and Logistics

- These information systems deal with various business processes like manufacturing resource planning, materials requirement planning, inventory management and quality control.
- Manufacturing and material management systems basically deal with planning the production, purchasing, inventory and labour management.
- Inventory management systems monitor inventory levels, threshold to decide when new orders næd to be placed to keep the stock updated.
- Quality and monitoring supports keeping track of defects in products encountered and minimizing the defect rate.
- These days computer supported manufacturing approach is in use that integrates several automated systems, such as computer-assisted design (CAD), computer-assisted manufacturing (CAM) etc.

Human Resource Management

- Human resource management information systems support recruitment processes right from shortlisting candidate profiles, conducting interviews and tests, to final selection Of candidates.
- These systems maintain employee records. They support of regular trainings for the employees.
- They facilitate continuous evaluation of employees to decide best and rewarding them appropriately.
- These systems manage the employee benefits data like retirement and pension holiday schemes etc.

9. Define CRM. Describe the different types of CRM. - Module no.4 1 (10M)

Ans.

- Definition: Customer relationship management (CRM is a customer-centric organizational strategy. Business organizations focus on better understanding customers requirements for products and services and then fulfilling their needs by providing high-quality, responsive service.
- In this way the company can retain existing customers and gain new ones.
- Since customers have all the power and they are the ones who can elevate or demote the image of the company, organizations have extended their focus from conducting business transactions to managing customer relationships.
- CRM builds sustainable long-term customer relationships that create value for the company as well as for the customer and this is the key to its success.
- Getting back a lost customer is far more difficult and expensive than retaining an existing customer. So the company's aim should be to keep the customers happy and maintain good customer relationships.

The two basic types of CRM are Operational CRM and Analytical CRM.

Operational Customer Relationship Management Systems

- Operational CRM systems basically deal with front office business processes.
- Front office include marketing, sales and support.
- Operational CRM systems provide the sales and service employees access to details of Customers, their purchase history, credit details and all interactions with the organization.
- These systems help identify the most profitable customers, and provide them the service.
- Improvising the order management processes, improving customer satisfaction as well as sales and profits is the ultimate aim of such systems.
- These help in better understanding the customer requirements fulfil them effectively and thus build healthy relationships with them.

Analytical Customer Relationship Management systems

In contrast to operational CRM systems that handle front office business processes, Analytical CRM systems are more into business analytics.

These systems involve acquiring business intelligence by analysing customer behaviours and which have been already collected in front office processes.

These systems involve processes that collect information related to customer and to the company's sales and marketing strategies.

They make use of modern technologies like data warehousing, data mining and decision support, which analyses on the collected historical information about the customers behaviour, their relationships with the organization; create various statistical models of this information over time and then make predictions acquiring, retaining, and losing customers.

The analyses is presented in the form of reports for the management to make further decisions such as how to improve customer retention, customer profitability analyses etc.

Fig. illustrates the relationship operational CRM systems and analytical CRM systems.

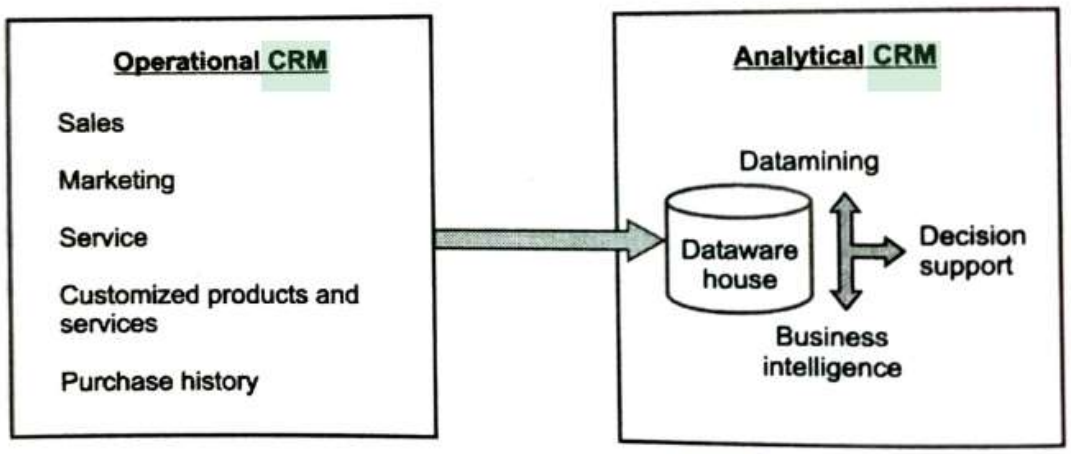

Fig. 4.7.1: Operational and Analytical CRM

10. What are the different phases of the ERP implementation lifecycle? - Module no.6 1 (10M)

Ans.

Depending on the types of value chain processes managed by the ERP system and a company's specific value chain, there are three strategic approaches to implementing an on-premise ERP system:

1) The vanilla approach:

- In this approach, a company implements a standard ERP package, using the package's built-in configuration options. When the system is implemented in this way, it will deviate only minimally from the package's standardized settings. The vanilla approach can enable the company to perform the implementation more quickly. However, the extent to which the software is adapted to the organization's specific processes is limited.
- Vanilla implementation provides general functions that can support the firm's common business processes with relative ease, even if they are not a perfect fit for those processes.

2) The custom approach:

- In this approach, a company implements a more customized ERP system by developing new ERP functions designed specifically for that fi rm. Decisions concerning the ERP's degree of customization are specific to each organization. To utilize the custom approach, the organization must carefully analyze its existing business processes to develop a system that conforms to the organization's particular characteristics and processes.
- Customization is expensive and risky because computer code must be written and updated every time a new version of the ERP software is released. Going further, if the customization does not perfectly match the organization's needs, then the system can be very difficult to use.

3) The best of breed approach:

- This approach combines the benefits of the vanilla and customized systems while avoiding the extensive costs and risks associated with complete customization. Companies that adopt this approach mix and match core ERP modules as well as other extended ERP modules from different software providers to best fit their unique internal processes and value chains. Thus, a company may choose several core ERP modules from an established vendor to take advantage of industry best practices
- For example, for financial management and human resource management. At the same time, it may also choose specialized software to support its unique business processes—for example, for manufacturing, warehousing, and distribution. Sometimes companies arrive at the best of breed approach the hard way.

Software-as-a-service (SaaS) :

- Rather than buying or custom building a complete ERP solution an organization can avail software-as-a-service. The organization will rent the software from the ERP cloud vendor over the Internet using SaaS.
- The ERP cloud vendor takes care Of software updates, security and other concerns. Organizations who cannot afford large IT investments can go for this option. Moreover such systems can be anytime and from anywhere.

11. What is an information system? Exp the necessary element with a neat diagram. - Module no. 1 (5M)

Ans.

- Information System is a mechanism designed to collect, process, store and distribute information within and outside the organization in order to improve organizational effectiveness and efficiency.
- A well-designed and developed information system helps an organization in managing its operations, interacting with customers and suppliers and competing in the marketplace.
- The use of computer has significantly improved the effectiveness of an information system and has proven to be a boon for all the organizations.
- Elements of Information System:

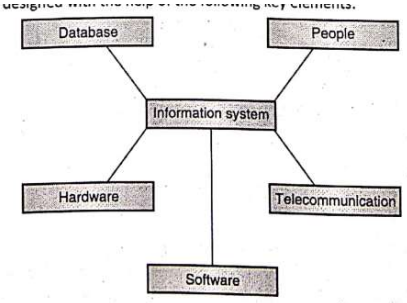

Fig. 1.2.1: Elements of IS

  - 1. Computer hardware: Every organization or individual today uses one or other form of computer hardware. It offers advantages as mentioned above and is the core element on which the entire information system is built. quick, easy, secure and cost-effective are key features of computer hardware.
  - 2. Computer software : Software today rules the world through hardware devices. Millions of apps available today for every human and business activity have empowered both the customers as well as the organizations. Customized and packaged - both kinds of software are available today to suit every business and personal needs.
  - 3. Communication networks : Communication networks have converted the world into a global village with almost every individual and organization connected with each other round the clock. All the new as well as old information today is instantly available for access from remote locations. Organizations either use a public network or set up their own to remain connected with customers, suppliers and distributors on real-time basis.
  - 4. Database : The core of any information system is data and a huge collection of inter-related data is called a database. Organizations spend a lot of time, efforts and resources in creating, processing, storing and analyzing their databases. Simply put, they make businesses more effective and efficient.
  - 5. People : People's ability to build an effective and efficient information system decides how far it is going to succeed. People are the creators as well as users and the ultimate beneficiaries of any information system. Employees and customers they both need effective understanding of the information system to take advantage of it.

12. Define Big Data and discuss its basic characteristics? - Module no. 2 (5M)

Ans. The term ‘Big Data’ means huge volume, high velocity and a variety of data. This big data is increasing tremendously day by day. Traditional data management systems and existing tools are facing difficulties to process such a Big Data.

Big data is the most important technologies in modern world. It is really critical to store and manage it. Big is a collection of large datasets that cannot be processed using traditional computing techniques.

Big Data includes huge volume, high velocity and extensible variety of data. The data in it may be structured data, Semi-Structured data or unstructured data. Big data also involves various tools, techniques and frameworks.

Volume

- Huge amount of data is generated during big data applications.
- The amount of data generated as well as storage volume is very big in size.

Velocity

- For time critical applications the faster processing is very important. E.g. share marketing, video streaming
- The huge amount of data is generated and stored requires higher processing speedof processing data.
- The amount of digital data will be doubled in every 18 months and it repeats may be in less time in future.

Variety:

- Variety of Big Data refers to structured, unstructured, and semi structured data that is gathered from multiple sources.
- Nowadays, data in the form of emails, photos, videos, monitoring devices, PDFs, audio, etc. are also being considered in the analysis applications.

Veracity

- The data captured is not in certain format.
- Data captured can vary greatly.
- So accuracy of analysis depends on the veracity of the source data.

13. Explain the Ethical issues and threats of information security? - Module no.3 (5M)

Ans. The vast growth of IT applications has generated a variety of ethical issues that fall into four categories. They are:

1. **Privacy issues** involve issues related to accumulating and protecting information about individuals. E.g. what information about someone can be revealed or what should be kept private, to what extent surveillance should be carried on an employee within an organization etc.
2. **Accuracy issues** involve issues related to ensuring the preciseness and correctness of information about individuals. E.g. how to ensure that the information about customers in company databases like their addresses, contact numbers is all updated and correct.
3. **Property issues** involve issues related to ownership of information. E.g. who has the copyrights for a particular intellectual property and what is the fair and just means to access it, say by paying some amount of access fees.
4. **Accessibility issues** involve issues related to rights of an individual to use particular information and to what extent and at what price. E.g. who has the right to access confidential information within an organization, under what restrictions and to what extent?

Information systems within organizations are susceptible to various types of threats. These threats can be classified into two major types:

(a) Unintentional Threats

1. Human Errors
2. Impersonation
3. Exterminator
4. Tailgating
5. Shoulder Surfing.

(b) Deliberate Threats

1. Espionage
2. Information Extortion
3. Sabotage or Vandalism
4. Theft of Equipment or Information
5. Identity Theft
6. Compromises to Intellectual Property

14. Describe how social computing inspires customer service Module no.4 (5M)

Ans. Social Computing has greatly transformed the way businesses are serving their customers and focussing more on building healthy customer relationships. At the same time it inspires the way customers are interacting with the businesses and their expectations from them are increasing.

Let us take a look at how social computing improves customer service.

1. Business organizations are using social computing to better understand their customers. They are becoming more watchful of the negative comments posted by their customers and taking positively to overcome the problems and improve product quality as well as customer service
2. Customers are now not just buyers but also advocates and influencers who actually influence the buying patterns of their peers on the social network. Hence, businesses need to be very keen in responding to customers quickly and fulfilling their requests faster.
3. Since customers have all the power and they are the ones who can fame or defame a brand, companies need to meet every requirement and expectation of the customer.
4. Social computing provides many opportunities for businesses to interact with their customers and resolve their complaints efficiently thereby turning disgruntled customers into supporters for the firm.
5. Providing discounts and intimating regular customers about offers and sales through emails are other ways of building better relationships with the customers.
6. To extend customer service, businesses can invite customers to become Facebook fans of their company page and also follow the company on Twitter. This way they can be the first person to know about the company's exclusive promotions and offers.

15. Differentiate between computer network wired and wireless technology - Module no.5 (5M)

	Wired Technology	Wireless Technology
1	Makes use of cables/wires as transmission media.	Makes use of electromagnetic waves as transmission media
2	More secured and faster as there is direct physical connectivity and also the transmission is guided.	Less secured and transmission can suffer from external interference and tapping as transmission is through air which is unguided
3	Superior networking performance even for longer distances.	Networking performance is Distance sensitive.
4	Expensive technology	Cost-effective technology
5	No mobility can be achieved.	Greater mobility is achieved through wireless networks.

16. Importance of security for ERP systems. Module no.3 1 (5M)

Ans. Application means application software systems developed for data processing, transaction processing, web applications, and database applications and so on. Each of these applications has its own design and architecture. Some have their own data storage.

In applications system security management, attention is given from the development stage so that the application is not under threat by unauthorized individual attackers. The focus of the security is on

- data security
- database security
- application security

1 Data Security

Security of the data is always of prime concern. The best way to provide security is to take regular backup of the data collected from various sources. Data loss whether accidental or due to any third party is always a heavy cost and risk to the business.

2 Database Security

A database is a collection of inter-related data and a strong security needs to be built around the database. A database is considered to be secure if it shows confidentiality, integrity and availability of the information stored. The database is insecure due to the following reasons:

1, Data tampering

The confidentiality and integrity of information can be at risk due to its tempering during its transmission from one location to another.

2. Data theft

Data theft is always a possibility particularly from an organization's people if they can identify such weak links to crack.

3. Falsifying user identity

Identity theft is one of the greatest threats to individuals in the internet environment. In a distributed digital environment it becomes increasingly possible for a person to falsify an identity to gain access to information.

4.Password related threats

In large systems, application users generally manage multiple passwords by selecting easy to guess passwords such as name, date of birth or a word from a dictionary for some code numbers. All of these methods compromise password security and service availability.

5. Unauthorized access to data

The database may contain confidential tables for confidential data available to all the database users who are authorized to access the database. In such a case the risk of accessing the confidential data is very high if access control by selective control is absent.

17. Define Lead time and Cycle time. - Module no.6 1 (5M)

Ans. The cycle time is the time it takes for a developer or a team to finish a project. It is typically the time between when the work item is in progress and when it has been completed. The cycle time officially starts when an item is moved to “In Progress” and ends when it is marked “Done” in whatever project management solution you’re using.

For example, when a marketing manager builds a social media campaign for Twitter, the cycle time begins when the team starts preparing the content.

The lead time is the time it takes for a single unit of product to be created and added to the backlog when it is shipped. This is typically the time it takes for one project to be completed and sent to the customer. If you’re using a Kanban board, the lead time will begin once the item is added to the “To Do” list column.

In the marketing example scenario above, the lead time will end once all the content is published on the platform.

By measuring cycle time, you can identify areas of concern that need to be addressed to improve the efficiency of your team. But by measuring lead time, you can determine how many items are flowing into your queue and how long it takes for your team to check them off.

19.What is business modelling? - Module no.2 1 (5M)

Ans. Business process modelling visually represents operations and workflows. The objective is to map out “as-is” processes as well as “to-be” processes—in other words, to graph current, unchanged processes along with future, improved processes. A myriad of charts and mediums can be used to undergo business process modelling, but the activity often begins with creating a step-by-step process flowchart with pen and paper.

Business Process Modeling Benefits

As we’ve already explained, understanding and updating your business processes helps you maximize the value of your ERP software. But there are even more benefits that come with business process modeling:

- Process Standardization: While mapping current workflows, there’s a good chance you’ll find multiple people performing an operation differently—and maybe incorrectly. Business process modeling uncovers these issues and provides an opportunity to adjust workflows to enforce best practices.
- Transparency: Process documentation clarifies overall business goals and operations, fostering greater understanding and accountability.
- Project Risk Mitigation: When workflows aren't documented, you run the risk of extending your software project's budget or timeline. Once you recognize current pain points and model “to-be” workflows, you can prioritize project objectives and ensure essential tools are in place to optimize your business without experiencing scope creep.

20. E-commerce - Module no.4 1 (5M)

Ans. Electronic Commerce (E-commerce) refers to the buying and selling of goods and services via electronic channels, primarily the internet. The applications of E- commerce includes online book store, e- banking, online ticket reservation (railway, airway, movie, etc.,), buying and selling goods, online funds transfer and so on.

During E-commerce transactions, confidential information is stored in databases as well communicated through network channels. so security is the main concern in E-commerce. E-commerce applications are vulnerable to various security threats. This results in the loss of consumer confidence.

Ecommerce can also be classified based on the parties involved in conducting the e-commerce transaction as:

- Business-to-consumer electronic commerce (B2C)
- Business-to-business electronic commerce (B2B)
- Consumer-to-consumer electronic commerce (C2C) :
- Business-to-employee (B2E)
- E-Government

(A) Benefits of E-Commerce

1. E-commerce provides broader access to global market by breaking the limitations of physicl boundaries.

2. It strives to lower the operational and transactional costs.

3. It provides faster access and 24 x 7 availability to different products and services.

4. Customers get access to variety of products and services, around the clock.

5. Any kind of information, services, and products can be delivered to people in cities, rural areas

and developing countries.

(B) Limitations of E-Commerce

Despite all these benefits, EC has some limitations

1. One major technological limitation is the lack of universally accepted security standards.

2. In less-developed countries, availability of Internet to take advantage of e-commerce is a major concern. Also, telecommunications bandwidth is insufficient, and accessing the Web is quiet expensive.

3. There still are cultural constraints where people are reluctant to use electronic medium to make purchases. They perceive that e-commerce is still insecure.

4. E-commerce still has unresolved legal issues and transborder issues. As time passes, these limitations will surely diminish.