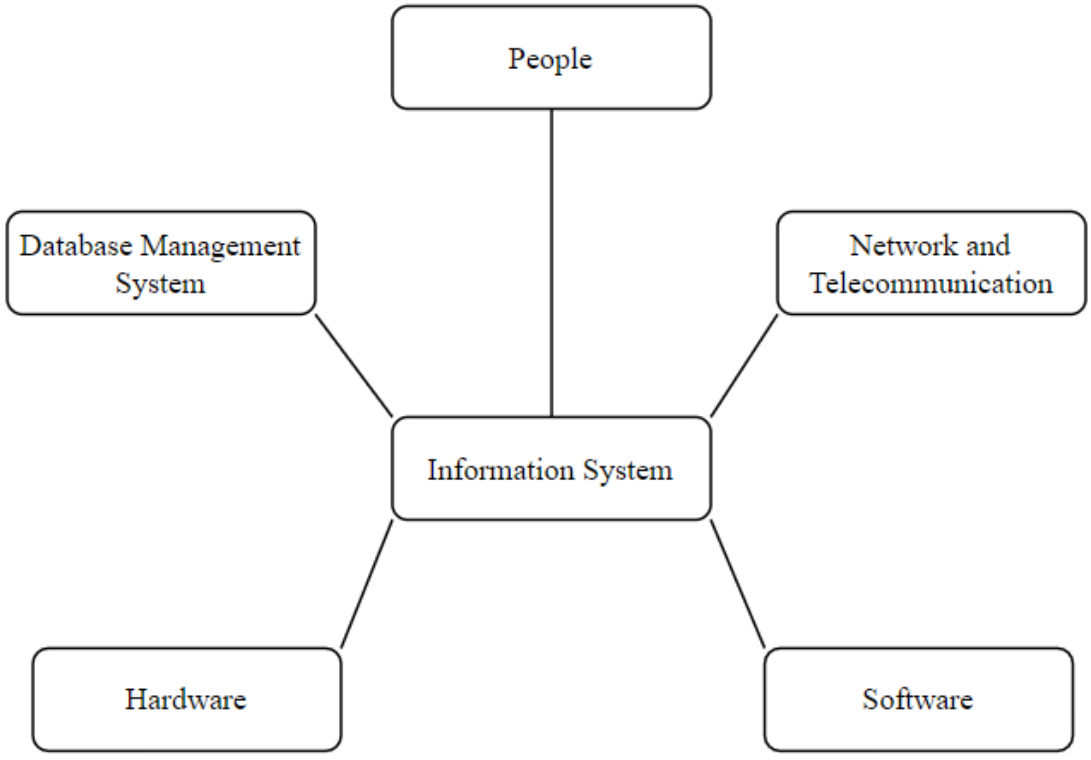
1. What is information system? Explain the necessary element with neat diagram. (5M)

Ans:

- An **information system** is as a set of interrelated components that collects, stores, and disseminates information from an organization's environment and internal operations to support organizational functions and decision making, communication, coordination, control, analysis, and visualization. Information systems transform raw data into useful information through three basic activities: input, processing, and output
- Three basic activities - input, processing, and output - produce the information organizations need. Feedback is output returned to appropriate people or activities in the organization to evaluate and refine the input. Environmental actors, such as customers, suppliers, competitors, stockholders, and regulatory agencies, interact with the organization and its information systems.

- **Elements of Information System**:



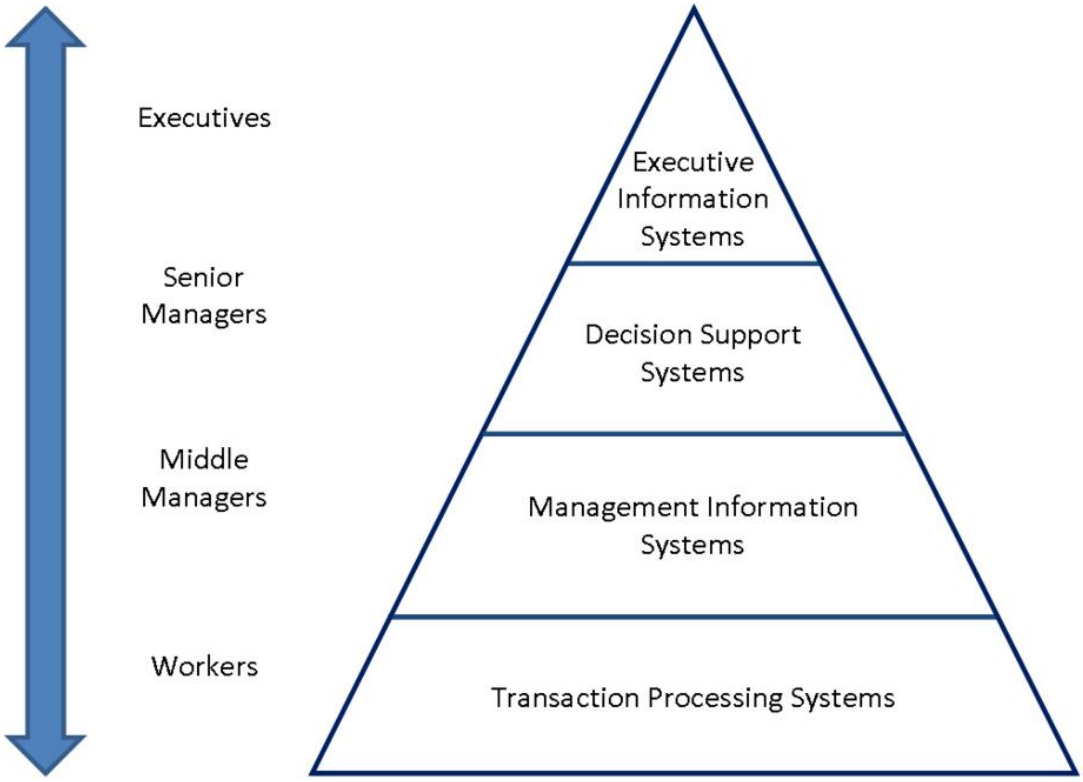
- **Computer hardware** consists of devices like the monitor, processor, printer, and keyboard, all of which work together to accept, process, show data, and information.
- **Computer software** consists of the detailed, pre-programmed instructions that control and coordinate the computer hardware components in an information system.
- **Data management technology** consists of the software governing the organization of data on physical storage media.
- **Networking and telecommunications technology**, consisting of both physical devices and software, links the various pieces of hardware and transfers data from one physical location to another. Computers and communications equipment can be connected in networks for sharing voice, data, images, sound, and video.
- **People** that are needed to run the system and the procedures they follow so that the knowledge in the huge databases and data warehouses can be turned into learning that can interpret what has happened in the past and guide future action.

2. List the types of Information system? Explain in brief. (10M)

Ans:

Information Systems are classified by organisational levels, mode of data, processing, system objectives and type of support provided.

Following are the types of information system:



1. Transaction Processing System (TPS):

- Transaction Processing System are information system that processes data resulting from the occurrences of business transactions
- Their objectives are to provide transaction in order to update records and generate reports i.e., to perform store keeping function
- The transaction is performed in two ways: Processing in a batch and Processing in real-time.
- Example: Bill system, payroll system, Stock control system.

2. Management Information System (MIS):

- A management information system (MIS) is an information system used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization and marketing. The study of the management information systems involves people, processes and technology in an organizational context.
- In a corporate setting, the ultimate goal of the use of a management information system is to increase the value and profits of the business. This is done by providing managers with timely and appropriate information allowing them to make effective decisions within a shorter period of time.
- Example: Sales management systems, Human resource management system.

3. Decision Support System (DSS):

- A decision support system (DSS) is an information system that supports business or organizational decision-making activities. DSSs serve the management, operations and planning levels of an organization (usually mid and higher management) and help people make decisions about problems that may be rapidly changing and not easily specified in advance - i.e., unstructured and semi-structured decision problems.
- Decision support systems can be either fully computerized or human-powered, or a combination of both.
- Example: Financial planning systems, Bank loan management systems.

4. Executive information system (EIS):

- An Executive information system (EIS), also known as an Executive support system (ESS), is a type of management support system that facilitates and supports senior executive information and decision-making needs. It provides easy access to internal and external information relevant to organizational goals.
- EIS emphasizes graphical displays and easy-to-use user interfaces. They offer strong reporting and drill-down capabilities. In general, EIS are enterprise-wide DSS that help top-level executives analyse, compare, and highlight trends in important variables so that they can monitor performance and identify opportunities and problems.
- The term EIS lost popularity in favour of business intelligence.

Although the pyramid model remains useful since it was first formulated, a number of new technologies have been developed and new categories of information systems have emerged, some of which no longer fit easily into the original pyramid model are:

- Process control system.
- Intelligent systems.
- Enterprise systems.
- Expert systems.

3. Discuss competitive advantage achieved in Information System. (10M)

Ans:

- All firms share market space with other competitors who are continuously devising new, more efficient ways to produce by introducing new products and services, and attempting to attract customers by developing their brands and imposing switching costs on their customers.
- Information systems help companies compete by maintaining low costs, differentiating products or services, focusing on market niche, strengthening ties with customers and suppliers, and increasing barriers to market entry with high levels of operational excellence.

1. Low-Cost Leadership:

- Use information systems to produce products and services at a lower price than competitors while enhancing quality and level of service
- Supermarkets and large retail stores such as Walmart use sales data captured at the checkout counter to determine which items have sold and need to be reordered. Walmart's continuous replenishment system transmits orders to restock directly to its suppliers. The system enables Walmart to keep costs low while fine-tuning its merchandise to meet customer demands.

2. Product Differentiation:

- Use information systems to enable new products and services, or greatly change the customer convenience in using your existing products and services.
- Apple created the iPod, a unique portable digital music player, plus a unique online Web music service where songs can be purchased for $.69 to $1.29 each. Apple has continued to innovate with its multimedia iPhone, iPad tablet computer, and iPod video player

3. Focus on Market Niche:

- Use information systems to enable a specific market focus, and serve this narrow target market better than competitors. Information systems support this strategy by producing and analysing data for finely tuned sales and marketing techniques. Information systems enable companies to analyse customer buying patterns, tastes, and preferences closely so that they efficiently pitch advertising and marketing campaigns to smaller and smaller target markets.
- For example, Hilton Hotels' OnQ system analyses detailed data collected on active guests in all of its properties to determine the preferences of each guest and each guest's profitability. Hilton uses this information to give its most profitable customers additional privileges, such as late checkouts.

4. Customer and Supplier Intimacy:

- Use information systems to tighten linkages with suppliers and develop intimacy with customers.
- Chrysler Corporation uses information systems to facilitate direct access by suppliers to production schedules, and even permits suppliers to decide how and when to ship supplies to Chrysler factories. This allows suppliers more lead time in producing goods.
- On the customer side, Amazon.com keeps track of user preferences for book and CD purchases, and can recommend titles purchased by others to its customers.
- Strong linkages to customers and suppliers increase switching costs (the cost of switching from one product to a competing product), and loyalty to your firm.

4. What are the advantages of Information Systems?

Ans:

Communication:

- With help of information technologies instant messaging, emails, voice and video calls becomes quicker, cheaper and much efficient.

Globalization and cultural gap:

- By implementing information systems, we can bring down the linguistic, geographical and some cultural boundaries. Sharing the information, knowledge, communication and relationships between different countries, languages and cultures becomes much easier.

Availability:

- Information systems has made it possible for businesses to be open 24×7 all over the globe. This means that a business can be open anytime anywhere, making purchases from different countries easier and more convenient. It also means that you can have your goods delivered right to your doorstep with having to move a single muscle.

Creation of new types of jobs:

- One of the best advantages of information systems is the creation of new and interesting jobs. Computer programmers, Systems analysers, Hardware and Software developers and Web designers are just some of the many new employment opportunities created with the help of IT.

Cost effectiveness and productivity:

- The IS application promotes more efficient operation of the company and also improves the supply of information to decision-makers; applying such systems can also play an important role in helping companies to put greater emphasis on information technology in order to gain a competitive advantage.

5. What are the characteristics of a good Information Systems?

Ans:

For information to be useful to the decision maker, it must have certain characteristics and meet certain criteria. Some of the characteristics of good information are discussed as follows:

1. Understandable:

- Since information is already in a summarized form, it must be understood by the receiver so that he will interpret it correctly. He must be able to decode any abbreviations, shorthand notations or any other acronyms contained in the information.

2.Relevant:

- Information is good only if it is relevant. This means that it should be pertinent and meaningful to the decision maker and should be in his area of responsibility.

3. Complete:

- It should contain all the facts that are necessary for the decision maker to satisfactorily solve the problem at hand using such information. Nothing important should be left out. Although information cannot always be complete, every reasonable effort should be made to obtain it.

4. Available:

- Information may be useless if it is not readily accessible in the desired form, when it is needed. Advances in technology have made information more accessible today than ever before.

5. Reliable:

- The information should be counted on to be trustworthy. It should be accurate, consistent with facts and verifiable. Inadequate or incorrect information generally leads to decisions of poor quality. For example, sales figures that have not been adjusted for returns and refunds are not reliable.

6. Concise:

- Too much information is a big burden on management and cannot be processed in time and accurately due to “bounded rationality”. Bounded rationality determines the limits of the thinking process which cannot sort out and process large amounts of information. Accordingly, information should be to the point and just enough – no more, no less.

7. Timely:

- Information must be delivered at the right time and the right place to the right person. Premature information can become obsolete or be forgotten by the time it is actually needed.
- Similarly, some crucial decisions can be delayed because proper and necessary information is not available in time, resulting in missed opportunities. Accordingly, the time gap between collection of data and the presentation of the proper information to the decision maker must be reduced as much as possible.

8. Cost-effective:

- The information is not desirable if the solution is more costly than the problem. The cost of gathering data and processing it into information must be weighed against the benefits derived from using such information.

6. What is the impact of Information Systems on organizations and society?

Ans:

- All modern organizations are hierarchical, specialized, and impartial, using explicit routines to maximize efficiency. Organizations differ in goals, groups served, social roles, leadership styles, incentives, types of tasks performed, and type of structure. These features help explain differences in organizations' use of information systems.
- Information systems and the organizations in which they are used interact with and influence each other.
- The introduction of a new information system will affect organizational structure, goals, work design, values, competition between interest groups, decision making, and day-to-day behaviour.
- At the same time, information systems must be designed to serve the needs of important organizational groups and will be shaped by the organization's structure, business processes, goals, culture, politics, and management.
- Information technology can reduce transaction and agency costs, and such changes have been accentuated in organizations using the Internet.
- New systems disrupt established patterns of work and power relationships, so there is often considerable resistance to them when they are introduced.
- Information technology is introducing changes for which laws and rules of acceptable conduct have not yet been developed. Increasing computing power, storage, and networking capabilities - including the Internet - expand the reach of individual and organizational actions and magnify their impacts. The ease and anonymity with which information is now communicated, copied, and manipulated in online environments pose new challenges to the protection of privacy and intellectual property.
- The main ethical, social, and political issues raised by information systems centre around information rights and obligations, property rights and obligations, accountability and control, system quality, and quality of life.

7. Why are information systems so essential for running and managing a business today?

Ans:

- Information systems are a foundation for conducting business today. In many industries, survival and the ability to achieve strategic business goals are difficult without extensive use of information technology.
- Businesses today use information systems to achieve six major objectives: operational excellence; new products, services, and business models; customer/supplier intimacy; improved decision making; competitive advantage; and day-to-day survival.

8. Define Big Data and discuss its basic characteristics.

Ans:

- **Big Data** is a collection of data that is huge in volume, yet growing exponentially with time. It is a data with so large size and complexity that none of traditional data management tools can store it or process it efficiently. Big data is also a data but with huge size.
- Big data can be described by the following characteristics:
    - Volume
    - Variety
    - Velocity
    - Variability

1. Volume:

- The name Big Data itself is related to a size which is enormous. Size of data plays a very crucial role in determining value out of data. Also, whether a particular data can actually be considered as a Big Data or not, is dependent upon the volume of data.
- Hence, 'Volume' is one characteristic which needs to be considered while dealing with Big Data solutions.

2. Variety:

- Variety refers to heterogeneous sources and the nature of data, both structured and unstructured.
- During earlier days, spreadsheets and databases were the only sources of data considered by most of the applications. Nowadays, data in the form of emails, photos, videos, monitoring devices, PDFs, audio, etc. are also being considered in the analysis applications.
- This variety of unstructured data poses certain issues for storage, mining and analysing data.

3. Velocity:

- The term 'velocity' refers to the speed of generation of data. How fast the data is generated and processed to meet the demands, determines real potential in the data.

- Big Data Velocity deals with the speed at which data flows in from sources like business processes, application logs, networks, and social media sites, sensors, Mobile devices, etc. The flow of data is massive and continuous.

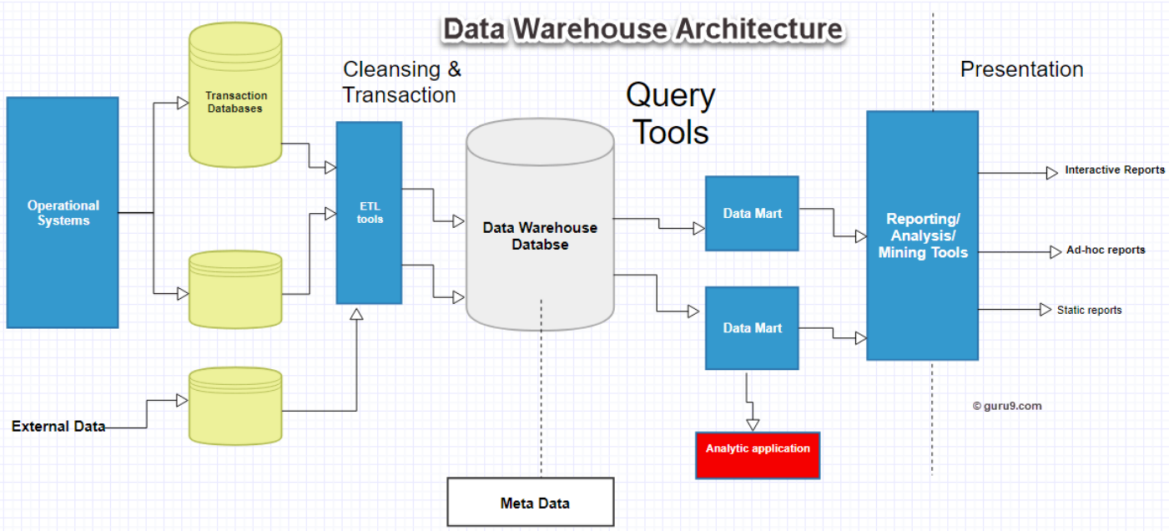
4. Variability:

- This refers to the inconsistency which can be shown by the data at times, thus hampering the process of being able to handle and manage the data effectively.

9. Explain the architecture of Data mart and Data warehouse in an organization.

Ans:

- A **Data warehouse** is an information system that contains historical and commutative data from single or multiple sources. Data Warehouse Concepts simplify the reporting and analysis process of organizations.
- **Data Warehouse Architecture** is complex as it's an information system that contains historical and commutative data from multiple sources. There are 3 approaches for constructing Data Warehouse layers: Single Tier, Two tier and Three tier.



Data Warehouse Architecture

- There are mainly 5 components of Data Warehouse Architecture: Database, ETL Tools, Meta Data, Query Tools and DataMart.
- The **central database** is the foundation of the data warehousing environment.
- The data sourcing, transformation, and migration tools are used for performing all the conversions, summarizations, and all the changes needed to transform data into a unified format in the data warehouse. They are also called Extract, Transform and Load (**ETL**) Tools.
- **Metadata** is data about data which defines the data warehouse. It is used for building, maintaining and managing the data warehouse.
- One of the primary objects of data warehousing is to provide information to businesses to make strategic decisions. **Query tools** allow users to interact with the data warehouse system.
- A **Data Mart** is focused on a single functional area of an organization and contains a subset of data stored in a Data Warehouse. A Data Mart is a condensed version of Data Warehouse and is designed for use by a specific department, unit or set of users in an organization. E.g., Marketing, Sales, HR or finance. It is often controlled by a single department in an organization.

10. Answer the following questions in short.

Ans:

10.1 Define Data

Ans:

Data are raw facts, figures or observations, particularly about physical activities or business transactions. For example, the sale of an automobile generates a lot of data describing the process. Data are identified by its types and attributes. For example: people, places, things, events, etc. they all are data.

10.2 Why is data important for an organization?

Ans:

Data constitute valuable organizational resources. Data have become the lifeblood of today's organizations, and the effective and efficient management of data is considered an integral part of organizational strategy.

10.3 What is the difference between data and information?

Ans:

People often use the terms data and information interchangeably. However, there is a difference. Data is a raw fact or figure that after processing results into information. Data by itself does not provide any understanding of the context in which it was recorded. In contrast, for information, both the context of the data and the motive of the person accessing the data become essential.

10.4 Describe the logical organization of data.

Ans:

Data are logically organized into data types, fields, records, files, and databases.

10.5 Describe database.

Ans:

A **database** is an integrated collection of logically related data elements. A database consolidates records previously stored in separate files into a common pool of data elements that provides data for many applications. The data stored in a database are independent of the application programs using them and of the type of storage devices on which they are stored. Thus, databases contain data elements describing entities and relationships among them.

10.6 What is Database Management System (DBMS)? Give any example

Ans:

A **DBMS** is a set of software programs that controls the organization, storage, management, and retrieval of data in a database. DBMS are categorized according to their data structures or types. They are used to store, update and retrieve a database. The DBMS accepts requests for data from the application program and instructs the operating system to transfer the appropriate data. For example: MS-Access, Oracle, etc.

10.7 Define data structure

Ans:

A **data structure** is a way of storing data in a computer so that it can be used efficiently. It is an organization of mathematical and logical concepts of data. A well-designed data structure allows a variety of critical operations to be performed using few resources reducing both execution time and memory space.

10.8 What is a query language?

Ans:

A database **query language** is a part of DBMS which allows users to interactively interrogate the database, analyse its data and update it according to the users' privileges on data. It also controls the security of the database.

10.9 State any two functions of DBMS.

Ans:

- **Creation** / **modifications** / **deletion** of tables, which may be physically located at one computer or different networked computers
- **Manipulation** of records in tables by sorting / filtering them
- **Searching** of desired records & **updating** / **deleting** them

10.10 What do you mean by data management?

Ans:

Data management is a managerial activity that applies information systems technologies like database management system, data warehousing, data mining and other data management tools to manage an organization's data resource, so that they can meet the information needs of their businesses.

10.11 What is a distributed database?

Ans:

Distributed database is a type of database which resides on network servers. It contains copies of operational of analytical databases or hypermedia databases, or any other type of database which are shared among various users.

10.12 What is data warehouse?

Ans:

Data warehousing is defined as a technique for collecting and managing data from various sources to provide meaningful business insights. It stores data that have been extracted from the various operational, external, and other databases of an organization.

10.13 What is data mart?

Ans:

It is a subset of the data warehouse designed specifically to cater to a particular line of business such as sales, finance, operations. Here data are directly collected from the sources. It focuses on the specific aspects of a business by offering specific Information.

10.14 Define metadata.

Ans:

It is the data that define and describe the data in the data warehouse. Data are stored in a metadata repository and maintained by a metadata directory.

10.15 State any two application areas of data warehouse.

Ans:

Following are the most common areas where data warehouses are extensively used these days:

- **Airline**: In the airline system, it Is used for operation purpose like crew assignment, analysis of route profitability, frequent flyer program promotions, etc.
- **Banking**: It is widely used in the banking sector to manage effectively the resources available on desk. Few banks also use it for the market research, performance analysis of the product and operations.

10.16 What is data mining?

Ans:

Data mining is a major use of data warehouse databases and the static data they contain. In data mining, the data in a data warehouse are analysed to reveal hidden patterns and trends in historical business activity.

This analysis can be used to help managers make decisions about strategic changes in business operations to gain competitive advantages in the marketplace.

10.17 Describe knowledge.

Ans:

Knowledge is a set of information which provides capability to understand different situations, anticipate results and judge their effects, offer solutions or clues to handle the situation.

Whether it is a person or an organization, knowledge plays a vital role in its growth and development.

10.18 What Is knowledge management?

Ans:

Knowledge management is the planned and systematic management of knowledge related activities, practices, programs and policies within an organization to create a big knowledge database and then share it with others and improve Its contents and quality continuously.

10.19 What are the types of knowledge?

Ans:

Knowledge Is of three types: explicit, tacit and intellectual.

Explicit knowledge is the knowledge and skill that Can be easily articulated and understood and which can be modelled and transferred, to others. Software products are 1 examples of explicit knowledge.

Tacit knowledge Is Intangible and cannot be articulated and transferred easily such as body language or innovative thinking. The consultants and experts posses tacit knowledge.

Intellectual knowledge could be tacit or explicit and is owned by somebody

10.20 What are the benefits of knowledge management?

Ans:

- It **increases collaboration** among different business units and also help in idea generation.
- It **optimizes a culture of knowledge sharing** within the organization.
- The repository of knowledge as a central database **protects intellectual capital**

10.21 State any two challenges of knowledge management.

Ans:

Security: This is another challenge as it is important not just to protect sensitive information but also the intellectual capital. KM is based on sharing and storing of knowledge by individual employees.

Measuring knowledge: At times, it is difficult to define a system to measure the knowledge within your organization, especially for tacit knowledge that cannot be easily quantified.

11. Describe the importance of data in today’s business environment.

Ans:

- Data are the main raw material of information systems. Data constitute valuable organizational resources that must be managed effectively to benefit all stakeholders in an organization. The increasing importance of data as a valuable organizational resource has brought a variety of changes in the organizations everywhere.
- Data that are generated as a result of various transactions are now stored, processed, and analysed using software applications like Database Management system (DBMS).
- They show relationships among various organizational entities such as sales, customers, competitors, and markets. In today's globalized world running on communication network, data are protected with the same energy as the cash in a bank vault.
- Data have become the lifeblood of today's organizations, and the effective and efficient management of data is considered an integral part of organizational strategy.

12. Explain the organization of data.

Ans:

Data are logically organized into Data types, fields, records, files, and databases:

- **Data types**: Every data has a type by which it is identified. This could be a character, a number, an alphanumeric or any other symbol. For example, Rohit, 25, 5A.

- **Field**: It is also called a data attribute. A field symbolizes the category to which the data belongs. In other words, a data field represents an attribute (a characteristic or quality) of some data (object, person, place, or event). For example, in the above data, 'Name' could be a field name for Rohit, 'Age' could be a field name for 25, and 'Address' could be the field name for 5A. Every data has a field name and all the data belonging to the same field are called its domain.

- **Record**: Generally, fields are organized in such a way that they represent some logical order, For example, first_name, last_name, address, city, state, and zip code. All of the fields used to describe the attributes of an entity are grouped together to form a record. Thus, a record represents a collection of attributes that describe a single entity.

- **File**: A group of related records Is a data file also referred to as a table. When it Is Independent of any other data files related to it, a single table may be referred to as a flat file which refers to any database that exists in a single file in the form of rows and columns. Thus, an employee file would contain the records of the employees of a firm.

- **Database**: A database is an integrated collection of logically related data elements. A database consolidates records previously stored in separate files into a common pool of data elements that provides data for many applications.

13. Describe database management system. What are its building blocks?

Ans:

A DBMS is a set of software programs that controls the organization, storage, management, and retrieval of data in a database. DBMS are categorized according to their data structures or types. They are used to store, update and retrieve a database. The DBMS accepts requests for data from the application program and instructs the operating system to transfer the appropriate data.

DBMS building blocks:

A DBMS includes four main parts: Modelling language, data structure, database query language, and transaction mechanism:

Modelling language:

A data modelling language defines the schema of each database hosted in the DBMS, according to the DBMS database model.

Data structure:

A data structure is a way of storing data in a computer so that it can be used efficiently. It is an organization of mathematical and logical concepts of data.

Database query language:

A database query language and report writer allow users to Interactively Interrogate the database, analyse its data and update it according to the user's privileges on data. It also controls the security of the database.

Following languages are used:

- Data Definition Language (DDL) - It defines the structure and provides a link between logical and physical views of the database.
- Data manipulation Language (DML) - It is a tool to write procedures for automating various DBMS functions. It can be used with other high-level languages.
- Structured Query language (SQL) - It allows the user to request information in the most natural way.

Transaction mechanism:
A database transaction mechanism ensures data integrity, despite concurrent user accesses (concurrency control), and faults (fault tolerance). It also maintains the integrity of the data in the database.

14. Write the Importance of data management.

Ans:

- Data are vital assets for an organization therefore they need to be managed like other Important business assets. Today's business organizations cannot survive or succeed without quality data about their internal operations and external environment.

- Organizations need to practice data management which is a managerial activity that applies information systems technologies like database management system, data warehousing, data mining and other data management tools to manage an organization's data resources so that they can meet the information needs of their businesses.

15. Explain different type of databases in detail.

Ans:

Over the last several decades there has been continuous development in Information technology and its business applications which have resulted in the evolution of several major types of databases. Some of them are given below:

- **Operational databases** are used to store data which are needed in details to support different business processes and operations of a company. Some of the examples are a customer database, human resource database, Inventory database, and similar other databases that contain data generated by different business operations.

- **Distributed database** is another type of database which resides on network servers on the World Wide Web, on corporate intranets or extranets, or on other company networks.

- Distributed databases contain copies of operational or analytical databases or hypermedia databases, or any other type of database. Replication and distribution of databases improve database performance at users end.

- **Web-based database**: The rapid growth of websites on the internet, intranets and extranets has rapidly increased the demand and use of web-based databases. A website stores information in the form of a hypermedia database. Such a database is a collection of hyperlinked pages of multimedia-based information (text, graphic, images, video clips, audio segments, and so on)

16. What is data warehouse? Explain its different types.

Ans:

Data warehousing is defined as a technique for collecting and managing data from various sources to provide meaningful business insights. It stores data that have been extracted from the various operational, external, and other databases of an organization.

It is a central source of the data that have been cleaned, transformed, and catalogued so that they can be used by managers and other business professionals for data mining, online analytical processing, and other forms of business analysis, market research, and decision support.

Types of data warehouses

- **Enterprise data warehouse**: It is a centralized warehouse which provides decision support service across the organization. It also has ability to distinguish and classify data according to different subjects and also gives access accordingly.

- **Operational data warehouse**: It stores data which is preferred to be used for routine activities like storing the records of the employees. It is refreshed in real time.

- **Data marts**: It Is a subset of the data warehouse designed specifically to cater to a particular line of business such as sales, finance, operations. Here data are directly collected from the sources. It focuses on the specific aspects of a business by offering specific information.

17. Describe data warehouse components.

Ans:

Components of data warehouses

Following are the components of a complete data warehouse system.

- **Operational, external and other databases**: These are different sources from where data are collected and transferred to the data warehouse.

- **Data acquisition centre**: After data from various operational and external databases are captured, they are cleaned and transformed into data that can be better used for analysis. The acquisition process Includes activities like consolidating data from several sources, filtering out unwanted data, correcting incorrect data, converting data to new data elements, or aggregating data into new data subsets. -

- **Data management**: These data are then stored in the enterprise data warehouse, from which they can be moved into data marts or to an analytical data store that holds data in a more useful form for certain types of analyses.

- **Metadata**: it Is the data that define and describe the data in the data warehouse. Data are stored in a metadata repository and maintained by a metadata directory.

- **Data analysis system**: It Is a set of variety of analytical software tools which help to query, report, mine, and analyse the data for delivery.

- **Web Information system**: It is the final component used to display the final information to the end users via internet and intranet.

18. Define knowledge. How is it different from information? What Is its significance for a business firm?

Ans:

- Knowledge is a set of information which provides capability to understand different situations, anticipate results and judge their effects, and offer solutions or clues to handle the situation.

- Data when organized in the right context becomes information. Information when shared, utilized and applied at the right time and right place to sort out problems becomes knowledge.

- Whether it is a person or an organization, knowledge plays a vital role in its growth and development. In today's challenging, tough and competitive business environment, having knowledge and the capability to use and manage it gives an edge. In a business, knowledge plays a key role today. Regardless of industry, all organizations today rely on the power of knowledge. They aim to build processes to store, grow and share knowledge to increase knowledge base of the overall workforce.

- Today businesses are also affected by the pace of the change. The change is rapid, innovative and path breaking. The product life cycles are shorter and organizations have to improve products and services to remain competitive.

- To manage this shift, knowledge is the key resource of the organization and workplace. Due to this critical importance of knowledge, business economy is today termed as knowledge economy.

19. What Is knowledge management? What factors have led to its development?

Ans:

Knowledge management is the planned and systematic management of knowledge-related activities, practices, programs and policies within an organization to create a big knowledge database and then share it with others and improve its contents and quality continuously.

In today's tough and challenging business world, KM is a necessity due to various forces which drive KM. They are both external and internal.

External forces

The forces in external environment are the following:

- **Globalization of business**: With loosening of trade barriers and advanced Internet technologies, businesses today operate beyond the local and national boundaries. It has a bigger market to tap and more sources and resources to bank upon. But there is a stiff competition everywhere. Overcoming them is a pre-requisite for success.

- **Changing customers and their demands**: Customers today easily access information about product and services, and are now more knowledgeable to demand more value at least cost. They drive your business by demanding better quality, new features, quick response and delivery.

- **Innovative competitors**: Competition is no longer limited to quality and cost but extended to providing value added services using technologies and best practices. This puts a heavy demand on organizations to compete with the same force.

Internal forces:
The forces in external environment are the following:

- **Effectiveness**: Organization’s effectiveness in handling operations, seizing opportunities play an important role in their success. Effectiveness is anticipating the change in market and environment requiring pro-active actions to deal with it.

- **Technological capability**: Businesses need technology to bring in efficiency and effectiveness. Businesses must operate through collaborative work, high end Information management and technology. All this put together defines an organization's technological capability.

- **Effectiveness of human resource**: People and organization behaviour affects effectiveness of the business enterprise. Knowledge about its human resource in terms of understanding their mental models and associations which affect them and the decision making is essential. KM initiative is the result of this requirement.

20. Describe the challenges faced by KM

Ans:

Challenges of knowledge management:

- **Creating a flexible culture and collaboration**: This is one of the most significant challenges of KM. Organizations struggle to implement new policies, because people by nature tend to resist change. Employees generally want to protect their skills and knowledge, or they are reluctant to learn from their peers.

- **Security**: This is another challenge as it is important not just to protect sensitive information but also the intellectual capital. KM is based on sharing and storing of knowledge by individual employees.

- **Measuring knowledge**: At times it is difficult to define a system to measure the knowledge within your organization, especially for tacit knowledge that cannot be easily quantified.

- **Document storage and management**: Knowledge will have to be stored and organized in some form which is never easy. Document management is a challenge for many companies. Documents must be well organized otherwise; it will be impossible to locate and use the knowledge you have stored.

- **Disseminating knowledge**: You'll need to devise a process where once you store knowledge other team members can access it. This is complicated both theoretically and tactically. So many organizations opt for a software system designed specifically for this purpose.