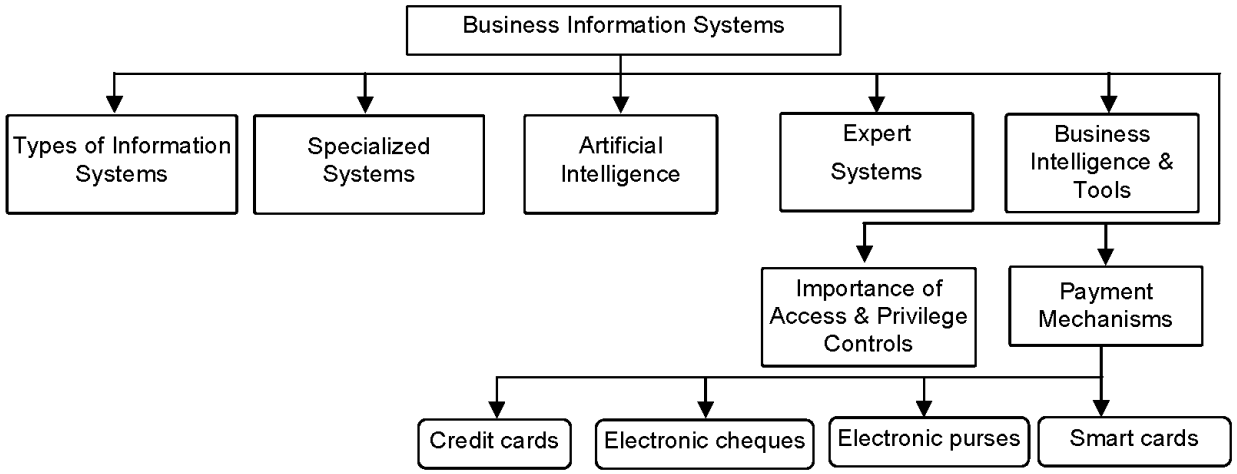
3. BUSINESS INFORMATION SYSTEMS



TOPIC 1: INFORMATION SYSTEMS & TYPES

Q.No.1. Define the terms Information, System, Information system and Business Information Systems? (A) **(PM, N15 MTP1 - 5M)**

1. **Information:** **(N15 RTP, M15 MTP2 - 1M)**
   - **a)** Data is a raw fact and can take the form of a number or statement, such as a date or a measurement, which has some meaning.
   - **b)** Processing of data is known as information.
2. Some examples of information include aggregating, sorting etc., .
3. **System:**
   - **a)** The system is a set of mutually related, coordinated elements or components that operate together to accomplish objectives by taking inputs and producing outputs in an organized manner.
   - **b)** A system contains several subsystems with sub goals, all contributing to meet the overall system goal.
   - **c)** For example, the finance operations and marketing areas of an organization should all have goals which together help to achieve overall corporate objectives.
4. **Information System (IS):** **(N15 MTP1 - 1M, M17MTP-2M)**
   - **a)** Information System (IS) is a combination of people, hardware, software, communication devices, network and data resources that working together to collect, retrieve, process, store and disseminate (distribute) information for the purpose of achieving objectives such as planning, coordination, analysis and decision making.
5. **Five Components of Information System:** **(N15 MTP1 - 4M)**
   - **a)** People Resources consist of end users and IT specialists;
   - **b)** Hardware resources involve machines and media;
   - **c)** Software resources include programs and procedures;
   - **d)** Data resources include data and knowledge bases; and
   - **e)** Network resources include communications media and networks;

   All components of Information Systems are mutually connected and cannot exist individually.
6. **Business Information System:** **(N14 RTP)**
   - **a)** *Business Information Systems (BIS) may be defined as systems integrating information technology, people and business.*

b) BIS bring business functions and information modules together for establishing effective communication channels which are useful for making timely and accurate decisions and in turn contribute to organizational productivity and competitiveness.

Q.No.2. What are the different types or levels of Information Systems. (A) (M17- 4M)

An Information system can support Strategy, Management, Knowledge and Operations.

1. **Strategic Level Systems:** **(N15 RTP)**
   - **a)** Strategic Managers use IS to track and deal with strategic issues, assisting long-range planning.
   - **b)** *A principal area is tracking changes in the external conditions such as market sector, employment levels, share prices, etc and matching these with the internal conditions of the organization. Ex. EIS*
2. **Management-Level Systems:** Used for the monitoring, controlling, decision-making, and administrative activities of middle management. Ex.MIS and DSS
3. **Knowledge-Level Systems:** These systems support discovery, processing and storage of knowledge and data workers. EX. KWS and OAS. **(M15 RTP)**
4. **Operational - Level Systems:** Support operational managers in tracking elementary activities and also includes tracking customer orders, invoice tracking, etc. Ex. TPS. **(M16 MTP2 - 1M)**

Q.No.3. Explain Transaction Processing System (TPS). Explain typical TPS and attributes of TPS. (A) (PM, N14 MTP2 - 1M, M16 MTP1 - 1M)

1. A **Transaction Processing System** is a type of information system that collects, stores, modifies and retrieves the day-to-day data transactions of an enterprise.
2. TPS is also known as transaction processing or real time processing.
3. TPS characteristics include Consistency, Reliability and Performance.
4. Some Standard examples of transaction processing systems would be the one used in Airline Reservation Systems, Railway reservation on by IRCTC, Banking Systems, or the Accounting system etc.

Typical Transaction Processing Cycle:

1. **Data Entry:**
   - **a)** The first step of the transaction processing cycle is the capture of business data.
   - **b)** For example, transaction data may be collected by point-of-sale terminals using optical scanning of bar codes and credit card readers at a retail store or other business.
2. **Transaction Processing:** Transaction processing systems process data in two basic ways: Batch processing & Real-time processing (also called online processing)
3. **Database Maintenance:**
   - **a)** An organization's databases must be updated by its transaction processing systems so that they are always correct and up-to-date.
   - **b)** For example, database maintenance ensures that changes are reflected in the data records stored in the company's databases.
4. **Document and Report Generation:**
   - **a)** Transaction Processing Systems produce a variety of documents and reports.
   - **b)** Examples of transaction documents include purchase orders, paychecks, sales receipts, invoices, and customer statements.

TPS Attributes:

1. **Access Control:** Access controls do not allow people who are not authorized to use the system are not permissible to influence or transform the transaction process.
2. **Equivalence:** TPS transactions are processed in the same format every time to ensure that full effectiveness is achieved.
3. **High Volume Rapid Processing**: TPS is designed to process large volumes of transactions in an instantaneous manner.
4. **Trustworthiness:** A TPS is designed to be robust(=tough and strong) and trustworthy. The system is capable to process transactions very rapidly at the same time it preserves the integrity of data.

Q.No.4. What are Transactions Processing Qualifiers? (A)
(PM, M15 - 4M, M17- 4M, N15 RTP, N14 MTP1 - 2M)

1. In order to qualify as a TPS, transactions made by the system must pass ACID test.
2. These four conditions ensure that TPS systems perform their transactions in a systematic, standardized and reliable manner.
3. **Transaction Processing Qualifiers**:
   a) **Atomicity:** This means that a transaction is either completed in full or not at all. TPS systems ensure that transactions take place in their entirety.
   b) **Consistency:** TPS systems exist within a set of operating rules or integrity constraints(=limitation). If an integrity constraint states that all transactions in a database must have a positive value, any transaction with a negative value would be refused.
   c) **Isolation:** Transactions must appear to take place in isolation or individual. For example, when a fund transfer is made between two accounts the debiting of one and the crediting of another must appear to take place simultaneously.
   d) **Durability:** Once transactions are completed they cannot be undone. To ensure that this is the case even if the TPS suffers failure, a log will be created to document all completed transactions.

SIMILAR QUESTION:

1. **Explain the ACID Test for any transaction processing system?**

Q.No.5. What is Management Information System (MIS)? (B) (PM)

1. 'Management Information System' (MIS) refers to the data, equipment and computer programs that are used to develop information for managerial use.
2. Management Information System is an integrated, user-machine system for providing information to support operation, management and decision-making functions in an organization.
3. Management Information System is a system which provides accurate, timely and meaningful data for management planning, analysis and control to optimize the growth of the organization.
4. A Management Information System aims at meeting the information needs of managers, particularly with regard to the current and past operations of the enterprise.
5. In simple words, MIS is the 'management of information systems'.
6. **MIS is an Integrated Application:** **(N16 RTP, N15 MTP1 - 2M)**
   a) MIS is an integrated information system that serves all departments within an enterprise.
   b) MIS implies the use of packaged software rather than proprietary software.

c) With the development of internet now MIS solutions are accessible via web browsers of internet.

d) *While developing an Integrated MIS system one should follow the following steps:*

i) *Groundwork examination*

ii) *Requirement psychoanalysis*

iii) *Systems blueprint/Design*

iv) *Acquirement/ procurement*

Examples of MIS:

1. *Airline reservations*
2. *Bank operations*
3. *ERP.*
4. *Logistics management applications*
5. *Train reservation.*

Q.No.6. What is meant by Decision Support System? (A) (PM, N15 - 2M, N14 MTP1 - 1M)

1. DSS's are information processing systems frequently used by accountants, managers and auditors to assist them for decision-making purposes.
2. A Decision Support System (DSS) is a computer-based information system that supports business or organizational decision-making activities.
3. DSS can be extremely beneficial and it increases the overall performance to any organization
4. A properly designed DSS may be defined as an interactive software-based system intended to help decision makers compile useful information from raw data.
5. Decision Support System (DSS) covers a wide variety of systems, tools and technologies.
6. DSS helps users to:
   - **i)** Produce data models and "what if" scenarios
   - **ii)** Manipulate data directly
   - **iii)** Premeditated to make non-routine decision.
   - **iv)** Slot in data from external sources.

Q.No.7. What are the components of a Decision Support System?(A) (PM, N15 - 4M, N14 MTP1 - 4M)

1. **Users:**
   - **a)** Usually, the user of a DSS is a manager with some unstructured or semi-structured problem. The manager may be at any level of authority in the organization (e.g. either top level or middle level or bottom level managers).
   - **b)** Generally, users do not need computer knowledge to use a Decision Support System.
2. **Databases:**
   - **a)** Decision Support Systems include one or more databases.
   - **b)** These databases contain both routine and non-routine data from both internal and external sources.
3. **Planning languages:** Planning languages can be either general-purpose or special-purpose, allowing users to perform routine tasks and specific tasks respectively. **(M17 RTP, M16 MTP2 - 2M)**

a) **General-purpose planning languages** allow users to perform many routine tasks: retrieving various data from a database or performing statistical analyses. These languages enable user to tackle a broad range of budgeting, forecasting, and other worksheet-oriented problems. Ex: electronic spreadsheets. **(N16 MTP2 - 2M)**

b) **Special-purpose planning languages** are more limited in what they can do, but they usually do certain jobs better than the general-purpose planning languages. Ex: statistical languages like SAS and SPSS

4. **Model base:**

a) t is the "brain" of the Decision Support System.

b) It performs data manipulations and computations with the data provided to it by the user and the database.

c) The planning language in DSS allows the user to maintain a dialogue with the model base.

d) There are many types of model bases, but most of them are custom developed models.

Q.No.8. Write a short note on Executive Information Systems? Explain the EIS components. (A) **(PM, M15 RTP, N16 RTP, M16 MTP2 - 4M)**

1. *An Executive Information System (EIS) is the nature of Information System used by* executives to access and administer the data they need to make informed business decisions
2. *As per the Business Dictionary "EIS is not a piece of hardware or software, but an infrastructure that supplies to a firm's executives the up-to- the minute operational data gathered and sifted from various databases. The typical information mix presented to the executive may include financial information, work in process, inventory figures, sales figures, market trends, industry statistics, and market price of the firm's shares. It may even suggest what needs to be done, but differs from a Decision Support System (DSS) in that it is targeted at executives and not managers."*
3. It is a tool that provides direct on-line access to relevant information in a useful and navigable format.
4. An EIS normally features graphical displays on an easy to use interface.
5. EIS can be used in many different types of organizations to monitor enterprise performance as to identify opportunities and problems.
6. EIS provides rapid access to timely information and direct access to management reports.
7. EIS is capable of accessing both internal and external data to provide the amount and kind of information executives find useful.
8. Alternative names for EIS are Enterprise Information System or Executive Support Systems (ESS).

Components: **(M16 - 2M)**

a) **Hardware:** Includes Input data-entry devices, CPU, Data Storage files and Output Devices.

b) **Software:** Includes Text based software, Database, and Graphic types such as time series charts, scatter diagrams, maps, motion graphics, sequence charts, and bar charts.

c) **User Interface:** Includes hardware and software components by which users interact with a machine. Several types of interfaces can be available to the EIS structure, such as menu driven, command language, natural language, and input/output.

d) **Telecommunication:** Involves transmitting data from one place to another in a reliable networked system.

SIMILAR QUESTION:

1. **Write about Enterprise Information System or write about Executive Support Systems**

Q.No.9. What do you meanly by Office Automation Systems (OAS)? Explain benefits and examples of Office Automation system. (B) (PM)

1. Office automation always implies a network of computers with a variety of available programs.
2. Office Automation refers to the entire tools and methods that are applied to office activities which formulate to practice written, visual, and sound data in a computer-aided mode.
3. Office automation refers to the use of computer and software to generate, collect, store, manipulate, and relay office information needed for accomplishing basic tasks and goals.
4. OAS uses new technologies to get a better working environment.
5. *Office Automation is a widespread appearance that includes an all - embracing variety of applications of computer, communication and information technologies in office surroundings.*
6. In meticulous, it in addition contains the following activities:
   a) Exchange of information;
   b) Management of administrative documents;
   c) Handling of numerical data
   d) Meeting, planning and management of work schedules.
7. **Benefits:**
   a) Improves communication within and between organizations.
   b) Accuracy of Communication.
   c) Reduces the cost of communication.
   d) Reduces the time.

Examples of Office Automation Systems: **(M17 RTP, M15 MTP2 - 4M)**

Application	Description
Word Processing	Use of a computer to perform automatically many of the tasks necessary to prepare typed or printed documents.
Electronic mail	Use of a computer network that allows users to send, store and retrieve messages using terminals and storage devices.
Voice Mail	Requires computers with an ability to store audio messages digitally and convert them back upon retrieval.
Electronic Calendaring	Use of a networked computer to store and retrieve a manager's appointment calendar. Allows other managers' calendars to be accessed and facilitates scheduling.
Video Conferencing	Use of television equipment to link geographically dispersed conference participants.
Desktop Video Conferencing	Video and audio equipment are attached to each workstation in the network enabling the two-way communication of picture and sound.
FAX	Uses special equipment that can read a document at one end of a communication channel and make a copy at the other end.
Imaging	Uses Optical Character Recognition (OCR) to convert data on paper to a digital format for storage in a secondary storage device.
Desktop Publishing	Uses a computer to prepare output that is very close in quality to that produced by a typesetter. **(M16RTP)**

Q.No.10. Explain Knowledge Management System (KMS). (A)
(PM, N14 RTP, M15 MTP1 - 1M, N15 MTP2 - 4M)

1. Knowledge Management Systems refers to system that stores and retrieves knowledge, improves collaboration, locates knowledge sources, mines repositories for hidden knowledge, captures and uses knowledge.
2. *The idea of a KM system is to enable employees to have ready access to the organizations documented base of facts, sources of information and solutions.*
3. KMS treats the knowledge component of any organization's activities as an explicit concern reflected in strategy, policy, and practice at all levels of the organization.
4. KMS maintains two types of knowledge. they are **Explicit** and **Tacit.**

(Differentiate Explicit and Tacit Knowledge) (M15 - 4M, M15 MTP2 - 4M)

a) **Explicit knowledge:** Explicit knowledge is that which can be formalized easily and as a consequence is easily available across the organization. For example – Online tutorials, Policy and procedural manuals.

b) **Tacit knowledge:** Tacit knowledge is unarticulated and represented as intuition, perspective, beliefs, and values that individuals form based on their experiences. It is personal, experimental and contextspecific. For example – hand-on skills, special know-how, employee experiences.

Q.No.11. Write about Knowledge Discovery and Data Mining (KDD). (B)

1. Knowledge Discovery and Data Mining (KDD) deals with ways and means of capturing and making obtainable knowledge of the experts to others in electronic form.
2. Knowledge Discovery in Databases systems also assist us to establish, contact, and communicate with experts on various subjects, present in our organization, or perhaps even outside.
3. Knowledge worker is a key intellect who is employed owing to his or her acquaintance of a subject matter, rather than their ability to perform manual labor.
4. It includes those in the information technology fields, such as computer programmers, systems analysts, technical writers or the people outside of information technology.
5. There are confident factors that show "why knowledge has gained so much momentum in recent times". These are:

a) **Altering Business surroundings:**

i) Previously the business environment used to be stable one, so the people of any organization naturally became knowledgeable over time.

ii) *They absorbed and hang out knowledge about company's product & service, its market, customers, competitors and suppliers.*

iii) *But now rapid change means speedy knowledge obsolescence, so need is there to manage it before it disappears without leaving a trace.*

b) **Burgeon Connections:**

i) Extremely dispersed operations, global expansion, continual change –none of these would have been possible if it was not possible to deploy knowledge officially and deliberately.

ii) *Cheap computing has made it probable.*

iii) *IT is now translucent to the user and is more accomplished of capturing knowledge.*

iv) *The authentic, interactive networks can put knowledgeable people in stroke through communication & technologies.*

c) **Globalization:**

i) It's putting heaviness on firms for innovation as markets are at the present release for new-fangled players and competition is stiff.

ii) The scenery of goods and services has changed.

iii) Now companies have started selling knowledge in addition.

iv) *For a research lab or software firm, not managing knowledge is similar to WalMart not managing inventory.*

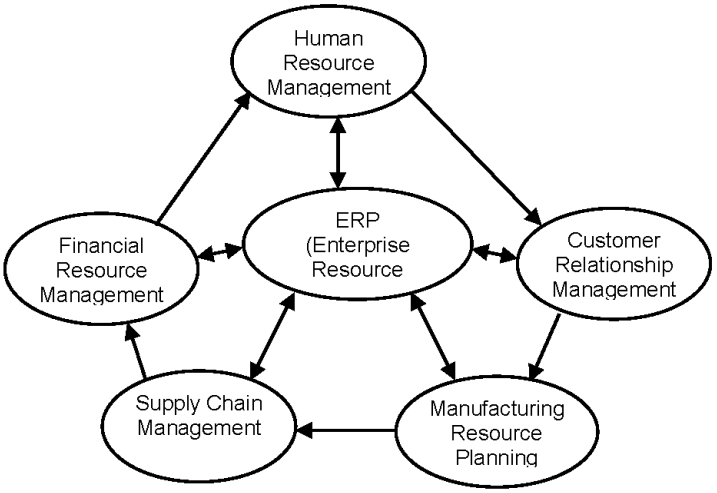
d) **Modification in Organizational composition:**

i) In today's state of affairs, the organizational structures are changing.

ii) The new arrangement is that of "Virtual Organization". This composition is used to integrate far flung operations & Knowledge Discovery in Databases is required.

TOPIC 2: SPECIALIZED SYSTEMS

Q.No.12. Explain Enterprise Resource Planning (ERP). (A) (PM)



ERP linkages with various Modules

An Enterprise Resource Planning (ERP) system fully integrates internal and external management information across entire organization, covering functional areas of an enterprise like Procurement, Inventory, Production, Sales, Logistics, Finance, Accounting and Human Resources.

1. "Enterprise Resource Planning has become a powerful tool in the hands of management for effective and optimum use of resources such as men, material, money and machine and to improve efficiency of an enterprise"
2. ERP promises one database, one application, and one user interface for the entire enterprise.
3. The basis of ERP is to make easy flow of information among all business functions in the internal boundaries of the organization and control the connections to external stakeholders.
4. ERP software provides competent and efficient administration, and mechanized business activities.
5. *It is a complete software solution package for enhancing the performance in large organizations and meeting their requirements with ease and efficiency.*

Q.No.13. Define the term CRM. Explain CRM Architecture. (A) (PM, N16 - 4M)

1. Customer Relationship Management (CRM) may be defined as a business process in which client relationships; customer loyalty and brand value are built through marketing strategies and activities.

2. The general purpose of CRM is to help organizations in managing their customers in a better way through the introduction of reliable systems, processes and procedures.
3. CRM allows businesses to develop long-term relationships with established and new customers, while helping to modernize corporate performance.
4. The main objective is to retain as much loyal customers.
5. As per the old **Pareto Rule "80/20 rule"** which emphasize that most organizations find that approximately 20% of their customer base generates 80% of the profits. It is merely based on the philosophy that indicates that old trustworthy or loyal customers are most lucrative and helps in generating profits. **(N15 MTP1 - 2M)**
6. A good CRM program needs to:
   a) Identify customer success factors,
   b) Create a customer-based culture,
   c) Adopt customer-based measures,
   d) Develop an end-to-end process to serve customers,
   e) Recommend the questions to be asked to help a customer to solve a problem,
   f) Track all aspects of selling to customers.
7. **Architecture of CRM:**
   a) **Operational:** Automation is provided to the basic business processes like marketing, sales, service, etc.
   b) **Analytical:** Helps to analyze customer behavior, implements business intelligence like technology, etc.
   c) **Collaborative:** Ensures contact with customers like phone, email, fax, web, SMS, post, in person, etc.

SIMILAR QUESTION:

1. **Describe how the business community is benefitted by adopting IT based CRM process?**

Q.No.14. Define Supply Chain Management. (A) (N16 RTP, N14 MTP2 - 1M)

1. Supply Chain Management (SCM) is the process of planning, implementing and controlling the operations of the supply chain with the purpose to satisfy customer requirements in an efficient way.
2. Supply Chain Management covers all movements and storage of raw materials, work-in-process, and finished goods from point-of-origin to point-of-consumption.
3. SCM is a chain that starts with customers and ends with customers.
4. SCM is based on two central ideas.
   a) The first is that practically every product that reaches an end user represents the cumulative effort of multiple organizations. These organizations are referred to collectively as the Supply Chain.
   b) The second thought is that while supply chains have existed for a long time, most organizations have only paid attention to what was happening within their "four walls."

Q.No.15. Explain the components of Supply Chain Management. (A)
(M15RTP, N15 RTP,N14 MTP2 - 3M , N16 MTP2 - 2M)

1. **Procurement / Purchasing:**
   a) It begins with the purchasing of parts, components, or services. Procurement m ust ensure that the right items are delivered in the exact quantities at the correct location on the specified time schedule at minimal cost.

b) *The key issue in procurement is how one goes about selecting and maintaining a supplier, which can be approached from two directions.*

2. **Operations:** Having received raw materials, parts, components, assemblies, or services from suppliers, the firm must transform them and produce the products or the services that meet the needs of its consumers.
3. **Distribution:** Distribution involves several activities—transportation (logistics), warehousing, and Customer Relationship Management (CRM).
4. **Integration:** The last element of Supply Chain Management is the need for integration. It is critical that all participants in the service chain recognize the entirety of the service chain.

Q.No.16. Explain Human Resource Management Systems? Explain key integration points and benefits. (B) (N16 RTP, N15 MTP1 - 2M, M16 MTP1 - 4M, M17 MTP-4M)

1. A Human Resources Management System (HRMS) is a software application that coalesce(=combine) many human resources functions, together with benefits administration, payroll, recruiting and training, and performance analysis and assessment into one parcel.
2. *HRMS or Human Resources Information System (HRIS) refers to the systems and processes at the intersection between Human Resource Management (HRM) and Information Technology.*
3. **Benefits:**
   - **a)** Bringing industry best practices to the HR functions
   - **b)** HRMS lets you asses and utilize the human resource potential completely.
   - **c)** The solution increases the operational efficiency and productivity of the HR department.
   - **d)** Reduces HR administrative costs.
   - **e)** Increases employee engagement and satisfaction.
   - **f)** Improves leadership development and succession
   - **g)** Enhances data integrity within the enterprise
   - **h)** Enable to meet compliance and audit requirement.

Q.No.17. Explain key modules in HRMS (B) (PM, N16 - 2M, N15 MTP2 - 4M)

1. **Workforce Management:** Integrated across the strategic Human Capital Management (HCM) solution; Workforce Management provides powerful tools to effectively manage labour rules, ensure compliance, and control labour costs and expenses.
2. **Time and Attendance Management:** The time and attendance module gathers standardized time and work related efforts. The most advanced modules provide broad flexibility in data collection methods, labor distribution capabilities, data analysis and Cost analysis and efficiency metrics.
3. **Payroll Management:** This module of the system is designed to automate manual payroll functions and facilitate salary, deductions, calculations etc.; eliminates errors and free up HR staff for more productive tasks. **(N16 RTP)**
4. **Training Management:** The module tracks the trainer or training organization; costs associated with training schedules, tracks training locations, required supplies and equipment and registered attendees. **(M16 RTP)**
5. **Compensation Management:** Compensation Management is to attract and retain talented employees.
6. **Recruitment Management:** This module helps in hiring the right people with the right target skills. This module includes processes for managing open positions/requisitions, applicant screening, assessments, selection and hiring, correspondence, reporting and cost analysis.

7. **Personnel Management:** The personnel management module comprises of HR master data, personnel administration, recruitment and salary administration.
8. **Organizational Management:** Organizational Management module includes organizational structure, staffing schedules and job description.
9. **Employee Self Service (ESS):**
   a) The Employee Self Service module allows employees to query HR related data and perform some Human Resource transactions over the system.
   b) For example - Employees may query their attendance record from the system without asking the information from HR personnel.
10. **Analytics:** The Analytics module enables organizations to extend the value of an HRMS implementation by extracting HR related data for use with other business intelligence platforms.

SIMILAR QUESTION:

1. **Explain different parts in HRMS?**

Q.No.18. Write about CORE Banking System? (A)
(PM, N15 - 2M, M16 RTP, M15 MTP1-2M, M17 MTP-4M)

1. **CORE** stands for "Centralized Online Real-time Environment**"**.
2. CORE banking systems are the heart of a bank. The absolute bank's branches access applications from centralized data centers.
3. In other words, the platform where communication technology and information technology are merged to suit core needs of banking is known as CORE Banking Solutions (CBS).
4. The various elements of core banking include:
   a) Making and servicing loans
   b) Opening new accounts
   c) Processing cash deposits and withdrawals
   d) Processing payments and cheques
   e) Calculating interest
   f) CRM activities
   g) Managing customer accounts
   h) Establishing interest rates
   i) Maintaining records for all the bank's transactions.
5. Banks make these services available across multiple channels like ATMs, Internet banking, Phone, debit card and other branches 24*7
6. Examples of major CORE banking products include Infosys' Finacle, Nucleus FinnOne and Oracle's Flex cube application.

SIMILAR QUESTION:

1. **Write about core banking solutions?**

Q.No.19. What is Accounting Information System (AIS)? Explain key components of Accounting Information System. (B) **(PM, M15 - 4M)**

1. Accounting Information System is defined as a system of collection, storage and processing of financial and accounting data that is used by decision makers.
2. An accounting information system is generally a computer-based method for tracking accounting activity in combination with information technology resources.

3. The resulting statistical reports can be used internally by management or externally by other interested parties including investors, creditors and tax authorities.

4. *The different sub components in AIS include Budgeting and Planning, Expenses Management, Revenue Management, Cash and Treasury Management, Accounting software, Electronic Banking, Activity-based Management, Payroll etc.*

5. **Key components/elements of Accounting Information System:**

   a) **People:**

      i) AIS helps various system users that include accountants, consultants, business analysts, managers, chief financial officers and auditors etc. from different departments within a company to work together.

      ii) With well-designed AIS, everyone within an organization who is authorized to do so can access the same system and get the same information.

   b) **Procedure and Instructions:** These include both manual and automated methods for collecting, storing, retrieving and processing data.

   c) **Data:**

      i) It refers to the information relevant to the organization's business practices that may include sales orders, customer billing statements, sales analysis reports, general ledger, inventory data, payroll information, tax information etc.

      ii) *This data can be used to prepare accounting statements and reports.*

   d) **Software:** These are the computer programs that provide quality, reliability and security to the company's financial data that may be stored, retrieved, processed and analyzed.

   e) **Information Technology Infrastructure:**

      i) This include hardware such as personal computers, servers, printers, surge protectors, routers, storage media, and possibly a backup power supply used to operate the system.

      ii) *The hardware selected for AIS must be compatible with the intended software.*

   f) **Internal Controls:**

      i) These are the security measures such as passwords or as complex as biometric identification to protect sensitive data against unauthorized computer access and to limit access to authorized users.

      ii) Internal controls also protect against computer viruses, hackers and other internal and external threats to network security.

TOPIC 3: ARTIFICIAL INTELLIGENCE

Q.No.20. Define the term Artificial Intelligence? Write some commercial applications of AI?
(A) (PM, N16 - 4M, M17 -2M, N14- RTP, M16 RTP, M17-RTP, M15 MTP2-1M)

1. Artificial Intelligence (AI) is the distinct area of computer science focusing on creating machines that tries to imitate aspects of human behavior, such as to reason, communicate, see, and hear.

2. The decisive objective of AI is to make a computer that can discover, sketch, and crack problems in parallel.

3. AI software can use its accumulated knowledge to reason and in some instances learn from experience and thereby modify its subsequent behavior.

4. Artificial intelligence is manmade and its level of activity depends on the programming capability.

5. It is mechanism that is not subject to human feelings like fatigue, worry, etc.

6. Expert systems, Pattern recognition, Natural language processing, and many others are some of the various purposes on which AI may be applied.

7. Commercial Applications of AI: **(N15 MTP1 - 3M, N16 MTP2 - 4M)**

a) Decision Support:

i) Intelligent human–computer interface (HCI) systems that can understand spoken language and gestures, and facilitate problem solving by supporting organization wide collaborations to solve particular problems.

ii) Situation assessment and resource allocation software for uses that range from airlines and airports to logistics centers.

b) Information Retrieval

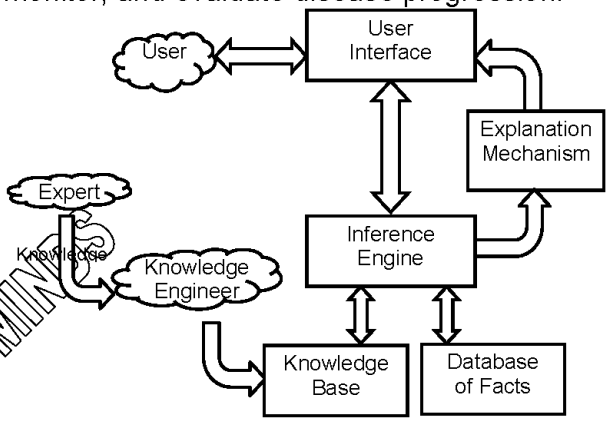
i) AI-based Intranet and Internet systems that distill tidal waves of information into simple presentations.

ii) Natural language technology to retrieve any sort of online information, from text to pictures, videos, maps, and audio clips, in response to English questions.

c) Virtual Reality

i) X-ray–like vision enabled by enhanced-reality visualization that allows brain surgeons to "see through" intervening tissue to operate, monitor, and evaluate disease progression.

ii) Automated animation interfaces that allow users to interact with virtual objects via touch (e.g., medical students can "feel" what it's like to stitch severed aortas/veins).



d) Robotics

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

ii) Cutting-edge robotics systems, from micro-robots and hands and legs.

TOPIC 4: EXPERT SYSTEMS

Q.No.21. Write a short note on Expert Systems. Explain various elements of expert systems. (A) **(PM, N12 - 4M, N14 RTP)**

1. An expert system (ES) is a computerized information system that allows non-experts to make decisions comparable to that of an expert.
2. Expert systems are used for complex or unstructured tasks that require experience and specialized knowledge.
3. The aim of the expert system is to have a team of experienced specialists holding industry-wide experience who further spread across implementations.
4. Expert system utilizes its strength to plan and execute a miscellaneous variety of projects for Defense, Government, Finance, Telecom, and Engineering sectors.

Expert systems typically contain the following components: **(N15 - 4M, M15 MTP1 - 5M)**

1. **User interface:** This program allows the user to design, create, update, use and communicate with the expert system.
2. **Inference engine:** This program consists of logic and reasoning mechanism that can simulate the expert's logic process and deliver advice. It uses data obtained from both knowledge base and the user to make associations and inferences, form conclusions and recommend a course of action.

3. **Knowledge base:** (N15 RTP)
   a) This includes data, knowledge, relationships, rules of thumb (heuristics) and decision rules used by experts to solve a particular type of problem.
   b) A knowledge base in a computer is equal to the knowledge of an expert or group of experts developed through years of experience in their field.
   c) The knowledge base of expert systems encloses both realistic and heuristic knowledge.
   d) Realistic knowledge is that knowledge of the job domain that is extensively shared, characteristically found in textbooks or journals, and frequently agreed upon by those knowledgeable in the meticulous field.
   e) Heuristic knowledge is the fewer rigorous, extra empirical, supplementary judgmental knowledge of performance.
4. **Explanation facility:** With the help of this facility a user can know the logic being followed by the expert system to arrive at the conclusion.
5. **Database of Facts:** This holds the user's input about the current problem. The user may begin by entering as much as they know about the problem or the inference engine may prompt for details or ask whether certain conditions exist. Gradually a database of facts is built up which the inference engine will use to come to a decision.

TOPIC 5: BUSINESS INTELLIGENCE & TOOLS

Q.No.22. What are various Business Intelligence tools? (A)
(N14RTP, M15RTP, N15RTP, N14 MTP2 - 4M, M16 MTP1 - 2M, M17 MTP-2M)

1. Business Intelligence tools are a type of software that is designed to retrieve, analyze and report data.
2. *BI is basically just getting important business information to decision makers when they need it – in a way that they can actually use it.*
3. Business Intelligence tools are software programs and features that are used to complete detailed data analysis.
4. Some of the key Business Intelligence tools are:
   a) **Simple Reporting and Querying:**
      i) This involves using the data warehouse to get response to the query: "Tell me what happened." The objective of a BI implementation is to turn operational data into meaningful knowledge.
      ii) There are used to arrange information into a readable format and distribute it to the people who need it
   b) **Business Analysis [BA]:**
      i) This involves using the data to get response to the query: "Tell me what happened and why." Business analysis refers to presenting visualizing data in a multidimensional manner.
      ii) *ETL (Extract, Transform, and Load) tools bring in data from outside sources, transform it to meet business specified operational needs, and then load the results into the company database.*
   c) **Dashboards:** **(M16 - 2M, N14 MTP1 - 1M)**
      i) This involves using the information gathered from the data warehouse and making it available to users as snapshots of many different things: "Tell me a lot of things, but without too much effort".

ii) Dashboards are flexible tools that can be bent into as many different shapes as per user requirements.

iii) It includes a collection of graphs, reports, and KPIs that can help monitor such business activities as progress on a specific initiative.

d) **Scorecards:** **(M16 - 2M, M15 MTP2 - 2M)**

i) Scorecards distil information into a small number of metrics and targets and provide users with an at-a-glance perspective of information.

ii) A scorecard has a graphical list of specific, attainable strategic milestones, combined with metrics that serve as benchmarks.

e) **Data Mining or Statistical Data Analysis:** **(N16 - 2M)**

i) This involves using statistical, artificial intelligence, and related techniques to mine through large volumes of data and providing knowledge without users even having to ask specific questions.

ii) Data Mining involves data analysis for discovering useful patterns that are "hidden" in large volume of diverse data.

TOPIC 6: IMPORTANCE OF ACCESS AND PRIVILEGE CONTROLS

Q.No.23. Explain the importance of access and privilege controls? (B) (N14 MTP2 - 1M)

1. Access controls are common form of controls encountered in the boundary subsystem by restricting the use of system resources to authorized users, limiting the actions authorized users can take with these resources and ensuring that the users obtain only authentic system resources.
2. Access controls possess four general functions: identity verification, authentication, authorization, and accountability. These are:
   a) **Identity Management:** Identity Management consists of one or more processes to verify the identity of a subject(=people) attempting to access an object(=data). Identity Management includes assigning and managing a subject's identity.
   b) **Authentication:** Authentication is the process of verifying a subject's identity at the point of object access.
   c) **Authorization:** Authorization identifies what systems, network resources, etc. a subject can access.
   d) **Accountability:** Each step from identity presentation through authentication and authorization is logged. The logs are stored for audits. They provide insight into how well the access control process is working or not.

Q.No.24. What are various approaches to access control? (B) (PM, N14 - 4M)

There are two major approaches to establish access controls:

1. **Role-based Access Control (RBAC):**
   a) RBAC largely eliminates discretion when providing access to objects(=data). Instead, administrators or automated systems place subjects(=people) into roles.
   b) Subjects receive only the rights and permissions assigned to those roles. When an employee changes jobs, all previous access is removed, and the rights and permissions of the new role are assigned.
   c) RBAC enforces static constraints based on a user's role.
2. **Rules - based Access Control (RAC):**
   a) RAC takes into account the data affected, the identity attempting to perform a task, and other triggers governed by business rules.

b) RAC uses specific rules that indicate what can and cannot happen between a subject and an object. A manager, for example, has the ability to approve his/her employees' hours worked.

c) Note that this is dynamic and occurs at the time a transaction is attempted. This also sometimes called dynamic RBAC.

Principle of least privilege: **(M16 RTP, N16 MTP1 - 2M)**

a) The principle of least privilege is widely recognized as an important design consideration in enhancing the protection of data and functionality from any kind of compromises towards security.

b) For example, a backup user does not need to install software; hence, the backup user has rights only to run backup and backup-related applications. Any other privileges, such as installing new software, should be blocked.

SIMILAR QUESTION:

1. **Briefly explain the two main approaches to establish access controls in software systems and explain the concept of principle of least privilege?**

TOPIC 7: PAYMENT MECHANISMS

Q.No.25. Write about credit card. What are the steps involved in credit card transaction? (B) **(PM, M16 RTP, N14 MTP1 - 4M)**

Credit Cards:

1. In a credit card transaction, the consumer presents preliminary proof of his ability to pay by presenting his credit card number to the merchant.
2. The merchant can verify this with the bank and create a purchase slip for the consumer to endorse.
3. The merchant then uses this purchase slip to collect funds from the bank, and, on the next billing cycle, the consumer receives a statement from the bank with a record of the transaction.

Four stages of processing a Credit card: **(N16 - 4M)**

Step 1: Authorization: This is the first step in processing a credit card. After a merchant swipes the card, the data is submitted to merchant's bank, called an acquirer, to request authorization for the sale. *The acquirer then routes the request to the card issuing bank, where it is authorized or denied, and the merchant is allowed to process the sale.* **(N15 MTP2 - 2M)**

Step 2: Batching: This is the second step in processing a credit card. At the end of the day, the merchant reviews all the day's sales to ensure that all of them were authorized and signed by the cardholder. It then transmits all the sales at once, called a batch, to the acquirer to receive payment.

Step 3: Clearing: This is the third step in processing a credit card. After the acquirer receives the batch, it sends it through the card network, where each sale is routed to the appropriate issuing bank. The issuing bank then subtracts its interchange fees, which are shared with the card network and transfers the remaining amount through the network, back to the acquirer.

Step 4: Funding: This is the fourth and final step in processing a credit card. After receiving payment from the issuer, minus interchange fees, the acquirer subtracts its discount fee and sends the remainder to the merchant. The merchant is now paid for the transaction, and the cardholder is billed.

Q.No.26. Write about electronic cheques(e-cheque). (B) **(PM, N14 - 2M)**

1. An electronic cheque has all the features as a paper cheque.
2. It acts as a message to the sender's bank to transfer funds.
3. Like a paper cheque, the message is first given to the receiver, who, in turn, endorses the cheque and presents it to the bank to obtain funds.

4. *The electronic cheque can prove to be superior to the paper cheque in one significant aspect. The sender can protect himself against fraud by encoding the account number with the bank's public key. Thus it is not necessary to reveal the account number to the merchant.*
5. *Digital certificates can be used to authenticate the payer, the payer's bank, and the bank account.*
6. Following 2 systems have been developed to use electronic cheques to pay Web merchants directly.
   a) **Financial Services Technology Corporation (FSTC):**
      i) The FSTC is a consortium of banks and clearing houses that has designed an electronic cheque.
      ii) Designed in the lines of traditional paper cheque, this new cheque is initiated electronically.
      iii) It uses digital signature for signing and endorsing.
   b) **Cyber Cash:**
      i) This is an extension of wallet for credit cards, and it can be used in the same way to make payments with participating vendors.
      ii) Cyber Cash will not serve as an intermediate party for processing the cheque. That function will be handled directly by banks.

Q.No.27. Define smart cards. Write about different types of smart cards available. (A) (PM, N15 RTP, N14 MTP2 - 1M, M15 MTP1 - 3M, M16 MTP1 - 1M)

1. **Smart Cards:**
   a) Smart cards have an embedded microchip instead of magnetic strip.
   b) The chip contains all the information a magnetic strip contains but offers the possibility of manipulating the data and executing applications on the card.
2. **Types of smart cards:** Three types of smart cards have established themselves.
   a) **Contact Cards:** Smart cards that need to insert into a reader in order to work, such as a Smart Card Reader or Automatic Teller Machines.
   b) **Contactless Cards:** Contact less smart card doesn't need to be inserted into a reader. Just waving them near a reader is just sufficient for the card to exchange data. This type of cards is used for opening doors.
   c) **Combi / Hybrid Cards:** Combi cards contain both technologies and allow a wider range of applications.

Q.No.28. Write about Electronic purses. (B) (PM, M15 - 2M)

1. Electronic purse is yet another way to make payments over the internet.
2. For E.g. Bank issues a stored value cards to its customers. Customer can then transfer value from their accounts to the cards at an ATM, a personal computer, or a specially equipped telephone.
3. While making purchases, customers pass their cards through a vendor's point of sale terminal.
4. No credit check or signature is needed.
5. Validation is done through a Personal Identification Number (PIN)
6. Once the transaction is complete, funds are deducted directly from the card and transferred to the vendor's terminal.

7. *Merchants can transfer the value of accumulated transactions to their bank accounts by telephone, as frequently as they choose.*
8. *When the value on a card is spent, consumers can load additional funds from their accounts to the card.*

QUESTIONS FOR ACADEMIC INTEREST – FOR STUDENT SELF STUDY

Q.No.29. Who uses Information Systems? (C) (M16 RTP)

1. **Strategic Level:**
   - **a)** *These are senior managers or Top-level managers who hold the titles such as Chief Executive Officers, Chief Financial Officers, Chief Operational Officers, Chief Information Officers and Chair Person of the Board, President, Vice President and Corporate Head Managers, who take decisions that will affect the entirety of the organization.*
   - **b)** Top Managers set goals for the organization and direct the company to achieve them.
   - **c)** Top Managers are ultimately responsible for the performance of the organization.
2. **Management Level:**
   - **a)** These are Middle Managers who are in the levels below top managers and hold the job titles like General Manager, Regional Manager etc.
   - **b)** Middle-level Managers are responsible for carrying out the goals set by Top Management.
3. **Knowledge Level:** These include knowledge and data workers who are selected, recruited and trained in a special manner.
4. **Operational Level:** These include Operational Managers or supervisors who are responsible for the daily management of the line workers who actually produce the product or offer the service.

Q.No.30. Explain the Link between Information & Knowledge. (C) (N14 RTP, M16 MTP2 - 4M)

1. **Information:**
   - **a)** Information is an important resource to an organization.
   - **b)** It represents an organization's tangible and intangible resources and all transactions relating to those resources.
   - **c)** Information influences the way an organization operates.
   - **d)** The right information, if it is delivered to the right person, in the right fashion, and at the right time, can improve and ensure organizational effectiveness and efficiency.
   - **e)** The information system is the mechanism used to manage and control the information resource.
2. **Knowledge:**
   - **a)** Knowledge is power.
   - **b)** Knowledge is derived from information.
   - **c)** Knowledge represents information with a potential use retained for reference in future decision situations.
   - **d)** Information must always be set in the context of its recipient.
   - **e)** The same data may be interpreted differently by different people, depending on their existing knowledge.

SIMILAR QUESTION:

1. **What is knowledge and information? Explain?**

Q.No.31. Write a short note on Specialized Systems. (C)
(N14 MTP1 - 1M, M15 MTP2 - 1M, N16 MTP1 - 2M)

1. Specialized Systems provide comprehensive end to end IT solutions and services to various organizations.
2. Specialized Systems also offer comprehensive solutions to various sectors to confront challenges, and convert every challenge into an opportunity.
3. There are various specialized systems. Some of them are:

   a) ERP **b)** CRM **c)** SCM **d)** HRMS **e)** CBS **f)** AIS

Q.No.32. Explain Benefits of CRM. (C) **(M17 - RTP)**

1. Some of the important benefits are:
   - **a)** Generating customer loyalty.
   - **b)** Raising a market intelligence enterprise.
   - **c)** Integrated relationship.
   - **d)** Preserving existing customers.
   - **e)** Providing enhanced services.
   - **f)** The underlying standard that business exists in their customers.
   - **g)** Developing connection and affiliation with customer.

Three Ways to CRM:

a) Take Action: Talks about Policies & Procedures, Marketing policies, Support procedures.

b) Analyze: Talks about Customer base Profitability, Buying pattern, Support pattern, Productivity.

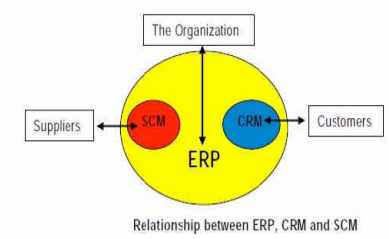
c) Discover: Talks about the trends in market selling opportunities for expansion.

SIMILAR QUESTION

1. **List out the advantages of CRM?**

Q.No.33. Explain Relationship between ERP, CRM and SCM. (C) (For Student self study)

1. CRM and SCM are two categories of enterprise software that are widely implemented in corporations and non-profit organizations.
2. the primary goal of ERP is to improve and streamline internal business processes, CRM attempts to enhance the relationship with customers and SCM aims to facilitate the collaboration between the organization, its suppliers, the manufacturers, the distributors and the partners.



Relationship between ERP, CRM and SCM

3. SCM software ensuring that materials and information flow through the supply chain with the highest possible efficiency and the lowest possible cost.
4. CRM software focuses on the identification, targeting, acquisition and retention of customers, and on the building of strong relationships between the business and its customers.

Q.No.34. What are the benefits of using AIS in business?(C)

1. AIS are a system that brings together, records, stores, and processes data to fabricate(=formulate) information for decision makers.
2. AIS can use extremely developed technology, be a trouble -free paper-and-pencil system or be something in amid.
3. Technology is just a tool to produce, uphold or get enhanced a system.
4. Make available sufficient controls to make certain that the entity's resources (including data) are obtainable when needed, as well as truthful and dependable.

SIMILAR QUESTION:

1. **Explain the Characteristics of Accounting Information System (AIS).**

Q.No.35. Write a short note on types of expert system problem domains. (B)

1. Expert systems are designed to deal with imprecise/indefinite data or problems that have more than one solution.
2. Expert Systems can be classified into:
   a) In Example-based system, developers enter the case facts and results. Through induction the ES converts these examples to a decision tree that is used to match the case at hand with those previously entered in the knowledge base.
   b) Rule-based systems are created by storing data and decision rules as if-then rules. The system asks the user questions and applies the if-then rules to the answers to draw conclusions and make recommendations.
   c) Frame based systems organize all the information (data, description, rules etc.) about a topic into logical units called frames, which are similar to linked records in data files. Rules are then established about how to assemble or inter-relate the frames to meet the user's needs.

(M16 - 2M)

SIMILAR QUESTION:

1. **What are the different types of Expert Systems?**

Q.No.36. Explain the Business reporting through MIS and IT? (C) (N16 RTP)

Benefits for micro-businesses and small to medium enterprises:

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

Benefits for large business:

a) **A single reporting language to report to government:** Extensible Business Reporting Language (XBRL) - an international standards-based business reporting language developed by accountants for financial reporting; **(M15 MTP1-1M, M16 MTP2 - 1M)**

b) **Reduce costs:** Reduction in the cost of assembling, analyzing, and providing data to government;

c) **Streamline the process of aggregating data:** Opportunities exist for streamlining the process of aggregating data across different internal departments, or business units of a company;

d) **Increased access to comparable performance information:** Standard Business Report (SBR) uses the same standard (XBRL) that simplifies and adds integrity to the performance of capital market comparisons by analysts and investors;

e) **Secure AUS key authentication:** Lodge online securely to a range of government agencies

f) **Same-time validation:** Rapid response that any lodgement has been received.

SIMILAR QUESTION:

1. **How do business reports streamline any businesses concerns and helps in taking smarter decisions and increase the productivity of an enterprise?**

Q.No.37. Explain step by step online transaction processing in an e-commerce environment. (C)

1. Advertising: The company communicates its products and services (catalogue);
2. Offering: The company offers specific goods and services;
3. Selling: The company agrees with the customer on the content of a specific order;
4. Billing: The company produces the invoice;
5. Paying: The buyer pays the seller by giving a payment instruction;
6. Matching: The seller matches the payment information (the authorization results and the actual crediting of account) with the orders and feeds the result into the back-office;
7. Delivering: The seller delivers to the buyer, and
8. Resolving: The seller and buyer try to resolve delivery or payment issues related to the purchase.

However, in some cases, the payment can also be a separate off-line transaction or a transaction via a financial intermediary (depicted by the dotted line). The current payment instruments for use on the web have different characteristics in terms of risk and security.

Q.No.38. Write short note on "Just-In-Time" (JIT). (C)

JIT is a philosophy of continuous improvement in which non-value-adding activities (or wastes) are identified and removed for the purposes of:

a) Reducing Cost

b) Improving Quality

c) Improving Performance

d) Improving Delivery

e) Adding Flexibility

f) Increase Innovativeness

When the JIT principles are implemented successfully, significant competitive advantages are realized. JIT principles can be applied to all parts of an organization: order taking, purchasing, operations, distribution, sales, accounting, design, etc.

THE END