Q1.

a) Define Management Information System. For what purposes MISs are used?

Answer:

The systems that support managers are referred to as management information systems.
MISs support functional managers by providing them with periodic reports that include summaries, comparisons, and other statistics. Examples are weekly sales volume and comparison of actual expenses to the budget.
Management information systems are also used for planning, monitoring, and control.

b) What are the primary activities conducted in any manufacturing organization according to the Porter's value chain model?

Answer:

The primary activities are those business activities through which a company produces goods, thus creating value for which customers are willing to pay. Primary activities involve the purchase of materials, the processing of materials into products, and delivery of finished products to customers. Typically, there are five primary activities:

- Inbound logistics (inputs)
- Operations (manufacturing and testing)
- Outbound activities (storage and distribution)
- Marketing and sales
- Services

The primary activities usually take place in a sequence as stated above. As work progresses according to the sequence, value is added to the product in each activity.

c) What are the different CRM applications?

Answer:

The different CRM applications are:

- **Customer-facing applications:** These include all the areas where customers interact with the company: call centers, including help desks: sales force automation; and field service automation. Such CRM applications basically automate the information flow or support employees in these areas.
- **Customer touching applications:** In this category, customers interact directly with the applications. Notable are self-service, campaign management, and general-purpose e-commerce applications.
- **Customer- centric intelligence applications:** These are applications that are intended to analyze the results of operational processing and use the results of the analysis to improve CRM applications. Data reporting and warehousing and data mining are the prime topics here.
- **Online networking applications:** Online networking refers to methods that provide the opportunity to build personal relationships with a wide range of people in business. These include chat rooms and discussion lists.

d) What are the steps involved in selecting a vendor and software package?

Answer:

The six steps in selecting a vendor and software package are:

- Determine the evaluation criteria and weight the importance of each.
- Identify the potential vendors.
- Evaluate vendors and packages and interview current users.
- Choose the vendor and package based on criteria, weights, and feedback.
- Negotiate a contract and take legal advice.
- Establish a service level agreement.

e) What are the five major risk areas that executives should consider when taking the decision to outsource the IT services?

Answer:

The five major risk areas that executives should consider when taking the decision to outsource the IT services are:

- Higher development or operational costs than anticipated.
- Inability to provide expected service levels at implementation.
- Exceeding the time anticipated for development or transition.
- Allowing technical failures to continue.
- Neglecting to navigate the internal politics of the company.

f) What are the different methods of attack on computing facilities?

Answer:

The different methods of attack on computing facilities are:

- **Data tempering:** The most common means of attack refers to entering false, fabricated, or fraudulent data into the computer or changing or deleting existing data.
- **Programming attacks**: The programming attacks are popular with computer criminals that use programming techniques to modify a computer program either directly or indirectly. For this crime, programming skills and knowledge of the targeted system are essential.
- **Viruses**: Virus is a program which has the ability to infect other computer programs without the owner of the program being aware of the infection. When the software is used, the virus spreads, causing damage to that program and possibly to others.

g) What is data architecture?

Answer:

Once you know what information must be processed, you need to determine a *data architecture*—that is, exactly what data you have and what you want to get from customers, including Web-generated data. Of special interest is the investigation of all data that flows within the organization and to and from your business partners.

The result of your investigation will probably show that data are everywhere, from data warehouses to mainframe files to Excel files on users' PCs. You need to conduct an analysis of the data, understanding its use, and examine the need for new data. This is when you need to think about how to process this data and what tools to use. If large amounts of data are used, tools such as Microsoft Transaction Server, Tuxedo, or CICS for mainframe data should be considered. Also, think about data mining and other tools. All this analysis needs to be done with an eye toward security and privacy.

Q2.

a) What is Information Systems Infrastructure? What are the major components of information infrastructure?

Answer:

An information infrastructure consists of the physical facilities, services, and the management that support all shared computing resources in an organization. The five major components of the infrastructure are:

- Computer hardware.
- Software
- Networks and communication facilities (including the internet and intranet).
- Databases and data workers.
- Information management personnel.

Infrastructure include these resources as well as their integration, operation, documentation, maintenance and management.

b) What is a digital economy? What are the characteristics of a digital economy?

Answer:

The digital economy refers to an economy that is based on digital technologies. The digital economy is also at times called an Internet economy, the new economy, or the Web economy.

In this new economy, digital networking and communication infrastructures provide a global platform over which people and organizations devise strategies, interact, communicate, collaborate, and search for information. Following are the characteristics of a digital economy:

- A vast array of digitizable products such as databases, news, information, books, movies, software, etc., are delivered over the digital infrastructure anytime, anywhere in the world.
- Consumers and firms of a digital economy conduct financial transactions digitally through digital currencies or financial tokens carried via networked computers and mobile devices.

- Physical goods such as home appliances and automobiles used in a digit economy are equipped with microprocessors and networking capabilities.

Q3.
a) What are enterprise systems? Give five examples of enterprise systems.

Answer:
Enterprise systems are systems or processes that involve the whole enterprise or major portions of it. These systems are different from functional systems which are confined to one department (functional area) each. Typical examples of enterprise systems that can be found in organizations are:

- **Enterprise resource planning (ERP),** which supports the internal supply chain.
- **Extended ERP,** which supports business partners as well.
- **Customer relationship management,** which provides customer care.
- **Partner relationship management,** which is designed to provide care to business partners.
- **Business process management,** which includes the understanding and realignment of processes in the organization, including reengineering and managing the flow of activities and tasks.
- **Product life cycle management,** which involves conceptualization, design, building, and support of products and services.
- **Decision support systems,** whose purpose is to support decision-making throughout the enterprise, frequently with the help of a data warehouse.
- **Knowledge management systems,** whose objective is to support knowledge creation, storage, maintenance, and distribution throughout the enterprise.

Intelligent systems, which include a knowledge component, such as an expert system.

b) What are the different types of flows in the supply chain?

Answer:

There are typically three types of flows in the supply chain:

- **Material flows:** These are all physical products, raw materials, supplies, etc. that flow along the chain. The concept of material flows also includes reverse flows-returned products, and disposal of materials or products.
- **Information flows:** This includes all data related to demand, shipments, orders, returns, and schedules, and changes in the data.
- **Financial flows:** The financial flows are the transfer of money, payments, credit card information and authorization, e-payments, and credit-related data.

c) What is knowledge management? What are the characteristics of knowledge that differentiate it from an organization's other assets?

Answer:
Knowledge management is a process that helps organizations identify, select, organize, disseminate, and transfer important information and expertise that are part of the organization's memory and that typically reside within the organization in an unstructured manner. This structuring of knowledge enables effective and efficient problem solving, dynamic learning, strategic planning, and decision-making. Knowledge management initiatives focus on identifying knowledge, explicating in such a way that it can be shared in a formal manner, and leveraging its value through reuse.
Knowledge is information that is contextual, relevant, and actionable. Knowledge has the following characteristics that differentiate it from an organization's other assets:

- **Extraordinary leverage and increasing returns:** Knowledge is not subject to diminishing returns. When it is used, it is not consumed. Its consumers can add to it, thus increasing its value.
- **Fragmentation, leakage, and need to refresh:** As knowledge grows, it branches and fragments. Knowledge is dynamic, it is information in action. Thus, an organization must continuously refresh its knowledge base to maintain it as a source of competitive advantage.
- **Uncertain value:** It is difficult to estimate the impact of an investment in knowledge. There are too many intangible aspects.
- **Uncertain value of sharing:** It is difficult to estimate the value of sharing the knowledge, or who will benefit most.
- **Rooted in time:** The utility and validity of knowledge may vary with time; hence, the immediacy, are, perishability, and volatility of knowledge are important attributes.

Q5.

a) What are the objectives of IT security management practices?

Answer:
The following are the objectives of IT security management practices:

- **Prevention and deterrence:** Properly designed controls may prevent errors from occurring, deter criminals from attacking the system, and deny access to unauthorized persons.
- **Detection:** Like a fire, the earlier an attack is detected, the easier it is to combat, and the less damage is done.
- **Limitation of damage:** This objective is to minimize/limit the losses once a malfunctioning has occurred (damage control). The objective here is to bring back the system in operation as fast as possible.
- **Recovery:** A recovery plan explains how to fix a damaged information system as quickly as possible.
- **Correction:** Correcting the causes of damaged systems can prevent the problem from occurring again.
- **Awareness and compliance:** All organization members must be educated about the hazards and must comply with the security rules and regulations.

b) What are the objectives of Information System Audit?

Answer:

An information system auditor attempts to answer questions such as:

- Are there sufficient controls in the system? What areas are not covered by controls?
- Which controls are not necessary?
- Are the controls implemented properly?
- Are the controls effective? That is, do they check the output of the system?
- Is there a clear separation of duties of employees?
- Are there procedures to ensure compliance with the controls?
- Are there procedures to ensure reporting and corrective actions in case of violation of controls?

Q6.

a) Explain the different tools used to evaluate IT investment under Return on Investment method.

Answer:

The following traditional tools used to evaluate investment decisions are known collectively as Return on Investment:

- **Net present value**: In an NPV analysis, the future values of benefits are converted to their present- value equivalent. The present value of the future benefits are compared under this method to the costs required to achieve those benefits, in order to determine whether the benefits exceed the costs.
- **Internal Rate of Return (IRR)**: If the investment requires and produces a number of cash flows over time, the IRR is defined to be the discount rate that makes the NPV of those cash flows equal to zero.
- **Payback Period:** The payback period is the point at which the yearly benefits of a project equal the costs.

Q7.

a) What are the ethical issues related to e-commerce?

Answer:

The ethical issues related to E-commerce are:

- **Privacy:** Most electronic payment systems know who the buyers are; therefore, it may be necessary to protect the buyers' identities.
- **Web tracking:** Log files are the principal resources from which e-businesses draw information about how visitors use a site. Applying analytics to log files means either turning log data over to an application service provider (ASP) or installing software that can pluck relevant from files in-house. By using tracking

software, companies can track individuals' movements on the Internet. Program such as cookies raise privacy concerns.

- **Loss of jobs:** The use of e-commerce may result in the elimination of some company employees as well as brokers and agents. The manner in which these unneeded workers are treated may raise ethical issues such as how to handle the displacement and whether to offer retraining programs.

b) What are the different levels of information systems based on organizational levels?

Answer:

The different levels of information systems based on support provided at different levels of management are:

- **Personal and productivity systems:** These are small systems that are built to support many individuals. Known as personal information management, such a system intends to ease the performance of various activities. Such systems are designed to increase the productivity and satisfaction of its users. Such systems are abundance in organizations, inexpensive, and have fairly standard capabilities.
- **Transaction processing systems:** A transaction processing system supports the monitoring, collection, storage, processing, and dissemination of the organization's basic business transactions. It also provides the input data for other information systems.
- **Functional and management information systems:** The major functional information systems are organized around the traditional departments in a company. These are accounting, finance, production/operations, sales and marketing, and human resources management. Functional information systems are put in place to ensure that business strategies come to fruition in an efficient manner. Typically, a functional system provides periodic reports about such topics as operational efficiency, effectiveness, and productivity by extracting information from databases and processing it according to the needs of the user. Functional information systems that support managers are referred to as management information systems. MISs support functional managers by providing them with periodic reports that include summaries, comparisons, and other statistics.
- **Enterprise information systems:** Enterprise systems support business processes that are performed by two or more departments.
- **Inter-organizational systems:** The information systems that connect two or more organizations are called inter-organizational systems. The most common among these systems are systems that connect sellers and buyers.

- **Global information systems:** Inter-organizational information systems that connect companies located in two or more companies are referred to as global information systems.

Very large and special systems: Some systems are very large, and they are often global in nature. Such systems include many subsystems of the previous levels. Some systems are designed for only one industry.

Text Book

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