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## **INFORMATION SYSTEMS FOR MANAGERS**

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*By: Kshyama Sagar Meher*



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# QUESTION PAPER

June – 2023

(Solved)

## INFORMATION SYSTEMS FOR MANAGERS

M.M.P.C.-8

Time: 3 Hours ]

[ Maximum Marks: 100

Note: Attempt any five questions. All questions carry equal marks.

**Q. 1.** “A network system consists of hardware components as well as software components.” Explain, in view of the statement, some of the hardware components.

**Ans. Ref.:** See Chapter-4, Page No. 46, ‘Introduction and Components of a Network’.

**Q. 2.** What do you understand by integrated software applications? Write some of its advantages and business utility.

**Ans. Ref.:** See Chapter-8, Page No. 123, ‘Integrated Software Applications’ and Page No. 124, ‘Advantages and Business Utility’.

**Q. 3.** Write a brief note on Java environment. Also, explain the structure of Java program.

**Ans. Ref.:** See Chapter-11, Page No. 179, ‘Java Environment’ and Page No. 180, ‘Structure of Java Program’.

**Q. 4.** “Neutral network is a set of connected input-output units, where each connection has a weight associated with it.” Explain the concept of neutral networks. Also, write some business applications of neutral networks.

**Ans. Ref.:** See Chapter-14, Page No. 254, Q. No. 6.

**Q. 5.** “Information handling in an organization should be a systematic process.” Explain in view of

statement, the role of information system in management.

**Ans. Ref.:** See Chapter-7, Page No. 96, ‘The Role of Information Management in an Organisation’.

**Q. 6.** What are data models ? How you would classify the data models ? Explain them with the help of an example.

**Ans. Ref.:** See Chapter-12, Page No. 206, Q. No. 4.

**Q. 7.** Write short notes on any three of the following:

(a) Computer Aided Decision-Making.

**Ans. Ref.:** See Chapter-1, Page No. 3, ‘Computer Aided Decision Making’.

(b) Executive Information System.

**Ans. Ref.:** See Chapter-1, Page No. 1, ‘Executive Information System’.

(c) Intranets and Extranets.

**Ans. Ref.:** See Chapter-9, Page No. 143, ‘Intranets and Extranets’.

(d) Online Analytical Processing (OLAP).

**Ans. Ref.:** See Chapter-13, Page No. 219, ‘On line Analytical Processing (OLAP)’.

(e) Cyber Crime.

**Ans. Ref.:** See Chapter-6, Page No. 91, Q. No. 9.



# QUESTION PAPER

December – 2022

(Solved)

## INFORMATION SYSTEMS FOR MANAGERS

M.M.P.C.-8

Time: 3 Hours ]

[ Maximum Marks: 100

Note: Attempt any five questions. All questions carry equal marks.

**Q. 1.** “System software coordinates the various parts of computer system and mediates between the application software and computer hardware.” Explain in brief, the meaning of application software. Also, state the difference between application software and system software.

**Ans. Ref.:** See Chapter-3, Page No. 32, ‘System Software’, Page No. 34, ‘Application Software’ and Page No. 43, Q. No. 3.

**Q. 2.** Define the term “Management Information System (MIS)”, Also, explain the statement, “There is a two-way relationship between organization and information system.”

**Ans. Ref.:** See Chapter-5, Page No. 73, Q. No. 1 and Page No. 72, ‘Organization and Information on System–Two-way Relationship’.

**Q. 3.** What are the different phases of traditional system life cycle? What are the three phases of traditional system life cycle where users are highly involved?

**Ans. Ref.:** See Chapter-10, Page No. 163, Q. No. 1, Page No. 164, Q. No. 2.

**Q. 4.** “Data mining is the exploration and analysis of large quantities of data in order to discover meaningful patterns and rules.” Explain, in view of the statement, the benefits of mining the data. Also, write the criteria for selecting data mining tools.

**Ans. Ref.:** See Chapter-13, Page No. 234, Q. No. 10, Page No. 236, ‘Data Mining Application’,

Page No. 237, ‘Selecting Data Mining Software Tools’ and Page No. 238, ‘Benefits of Data Mining’.

**Q. 5.** Compare the business software solutions from Oracle and SAP. Clearly highlight the features which are common between the two.

**Ans. Ref.:** See Chapter-8, Page No. 132, Q. No. 3(a), Q. No. 3(b) and Page No. 134, Q. No. 5.

**Q. 6.** “If a firm does not want to use its own internal resources to build and operate information systems, it can hire an external organization that specializes in providing these services to do the work.” Explain Outsourcing Information System along with its advantages.

**Ans. Ref.:** See Chapter-9, Page No. 147, ‘Outsourcing Information System’, ‘Advantages of Outsourcing’.

**Q. 7.** Write short notes on the following:

(a) Metropolitan Area Network (MAN).

**Ans. Ref.:** See Chapter-4, Page No. 47, ‘Metropolitan Area Network’.

(b) Characteristics of Information.

**Ans. Ref.:** See Chapter-6, Page No. 87, Q. No. 2.

(c) Features of Java.

**Ans. Ref.:** See Chapter-11, Page No. 177, ‘Overview and Features of Java’.

(d) Blockchain.

**Ans. Ref.:** See Chapter-15, Page No. 275, Q. No. 5.

(e) Smart Devices.

**Ans. Ref.:** See Chapter-2, Page No. 20, ‘Smart Devices’.

# **Sample Preview of The Chapter**

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# INFORMATION SYSTEMS FOR MANAGERS

## BLOCK-1 : INFORMATION TECHNOLOGY FOR MANAGERS



### Information Technology : An Overview

#### **INTRODUCTION**

Information Technology (IT) is a key component of successful businesses and organizations. It is a major facilitator of business activities and a catalyst for effective operations and management of organizations. IT has the following utilities:

- (a) Facilitate fast and inexpensive communication in and between organizations.
- (b) Perform high-volume, high-speed, numeric and complex calculations.
- (c) Help in analysing big volume of data for decision making.
- (d) Facilitate huge amounts of data storage which is quick and easy to access.
- (e) Automate business processes and tasks which were performed manually.

IT improves productivity, reduces cost, enhances decision-making process, helps in increasing market share, improves customer relationships and helps in developing new strategic applications. It has become mandatory for organizations to make full use of IT to survive. IT has been one of the standard components of an organization. Management Information System (MIS) and decision support system (DSS) help managements in decision-making. Business process reengineering (BPR) has been the need to the day for every business and BPR involves changing business processes in an innovative way. IT plays a major role in BPR. Internet and Intranet help an organization in changing its business processes to reduce cycle time and time to market a product. Thus, managers should identify opportunities to implement Information System (IS) to improve the business processes and lead IS projects in IT. In this chapter, we will define IT and understand different IT systems and related aspects.

#### **CHAPTER AT A GLANCE**

##### **DEFINITIONS OF INFORMATION TECHNOLOGY**

Information refers to the processed data, which is used to trigger certain actions or understand what the

data is all about. Information can be said as the finished product for which data is the raw material. Information is also data put into a meaningful and useful context and communicated to a recipient who uses it in decision-making. Technology has an important role in the information system. Technology includes hardware, software, databases and communication system. Hardware includes devices like processor, monitors, keyboard and printer that accept data, process them, and display them. Software is a set of programs that enable the hardware to process data. Database, an integral part of IT system, is a collection of related files, tables, relation. It stores data and the association among them. Network links computing resources of an organization and facilitates sharing of hardware and software. IT System also includes people in the organisation.

##### **TYPES OF INFORMATION SYSTEMS**

Different types of information systems are there. Some of them are listed below.

**(a) Transaction Processing System (TPS):** A TPS is a set of information which processes the data transaction in database system that monitors transaction programs. It is used primarily for record keeping. Sales order entry, payroll, and shipping records are examples of TPS. TPS is used for periodic report generation in a scheduled manner and for producing reports on demand.

**(b) Decision Support System (DSS):** A DSS is used to support determinations, judgments, and courses of action in an organization or a business. A DSS sifts through and analyzes data, compiling comprehensive information that can be used to solve problems and in decision-making. DSS is used when the problem is complex and the information needed to make the best decision is difficult to obtain and use. DSS helps in decision-making process and does not make any decision.

**(c) Executive Information System (EIS):** An EIS is used to assist senior executives in the decision-



making process. It does this by providing easy access to important data needed to attain strategic goals. An EIS normally features graphical displays on an easy-to-use interface. Also called Executive Support System, it must be easy to use so that executives can use it without any assistance. It can do trend analysis, exception reporting and have drill down capabilities. A graphical form tailored to executive's information needs is used. On-line analysis tools and a broad range of internal and external data are used in this system.

**(d) Management Information Systems (MIS):** An MIS is a set of systems and procedures that gather data from a range of sources, compile it and present it in a readable format. It relies largely on technology to compile and present data, but the concept is older than modern computing technologies. An MIS provides the management routine summary of an organisation's basic operations. TPS records the basic operations and MIS consolidates the data on sales and production. MIS provides routine information to managers and decision makers. An MIS increases operational efficiency as it supports production, finance and marketing. Managers use an MIS to create reports that provide them with a comprehensive overview of all the information they need to make decisions ranging from daily minutiae to top-level strategy.

**(e) Workflow System:** A workflow system combines several discrete workflow tools into one cohesive application that automates processes involving both machine and human tasks, usually in a linear sequence. However, task sequences can also be dynamic and/or run in parallel depending on actions taken or the needs of the process. Workflows can integrate with existing systems using APIs, allowing administrators to connect and push/pull data between applications as part of workflow processes. It is also called a document image management system. For example, a workflow system is used by banks for loan sanction process. This system may be internet based and combine e-mail. It may be based on client/server architecture which may use a database/file server.

There are three types of workflow software:

- (i) Administrative workflow system:** It focuses on the tracking of expense reports, travel requests and messages.
- (ii) Ad-hoc workflow system:** It deals with the shaping of product, sales proposal and strategic plans.
- (iii) Production workflow system:** It is concerned with mortgage loans and insurance claims.

**(f) Enterprise Resource Planning (ERP):** ERP is used to plan and manage all the core supply chain, manufacturing, services, financial and other processes

of an organization. It is used to automate and simplify individual activities across a business or organization, such as accounting and procurement, project management, customer relationship management, risk management, compliance and supply chain operations. ERPs link every aspect of an enterprise. It facilitates organizations to share and integrate data for consistent flow of information over the organization's network and using the internet as the organization may decide.

**(g) Expert Systems:** It makes suggestions and acts like an expert in a specific field. It has an extensive knowledge base. Such systems are in use for automating business processes to great extent. These systems are expected to be in high demand in future.

#### **BUSINESS PERSPECTIVE OF IT**

IT has tremendous impact on business. IT systems have better cost-performance ratio. Investments in IT infrastructure last long. A better and more powerful computer lasts for years. Some of the applications of IT are:

**(a) Finance and accounting:** IT is used for managing cash and other financial resources, analyze investments, forecasting revenues, determining the best sources and uses of funds.

**(b) Sales and marketing:** IT is used for developing new services, determining the best location for production and distribution facilities, analysis of operational data and determining the best advertising and sales approaches. IT is used to set product prices, get the highest total revenues and for product and price analysis.

**(c) Manufacturing:** IT is used for processing customer orders, controlling inventory levels, developing production schedules and monitoring product quality. Computer Aided Design and Computer Aided Manufacturing has evolved due to the application of IT. Computer Integrated Manufacturing dominates the manufacturing sector. Robots are now used in manufacturing plants and other sectors such as healthcare, defense sector and laboratories.

**(d) Human Resource Management:** IT is used advertising vacancies, screening applicants, conducting various tests, and the rest of the recruitment process. Even inside the organisation, IT is extensively used in managing the staff, training, salary and other related aspects.

**(e) Project Management:** IT is used for managing projects. Various software programs are used to set schedules, milestones, facilitate communication among group members, and monitor the progress of projects. These programs are used in document and report preparation.

**(f) Data Analysis:** Information systems are used to analyze stocks, bonds and options to provide better

**INFORMATION TECHNOLOGY : AN OVERVIEW / 3**

service to clients. This application is high in demand even by other firms dealing with large data because of the internet. It processes of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making.

**INTERNET AND ITS BUSINESS APPLICATIONS**

An Intranet is a network of computers in an organization. Internet is a global network of computer networks. The Internet connects various organizations. All networks, which are part of the Internet, follow a protocol called TCP/IP protocol. Internet has impacted businesses and people. The Internet which provides fast and inexpensive communication channels is used for various purposes such as transferring data files, e-mail messages and for sharing documents and images. The Internet has changed the way businesses operate. Consumers making purchases from homes. People are also doing online banking. All these are happening because of computers. The manufacturers and corporate houses deal with the producers without going through the retailers. Internet facilitates development of workflow systems across networks. Workflow systems place system controls in the hands of user departments and provide users with tracking, routing, document imaging, and other capabilities designed to improve business processes.

Some of the other Internet applications are tele-conferencing, video conferencing and screen sharing. Tele-video conferencing save travel time and travel cost. The ideas are now shared quickly and the information flow is much faster. The product development time and contract negotiation time have also come down. Faster and accurate information availability has improved the customer service. Internet has helped many organizations in drawing competitive advantage. Each and every person working in business organizations, academic institutions, government organizations and many more like healthcare and R&D use the Internet. Even the agriculture sector uses this tool for connecting and disseminating information.

Addition or deletion of a system or a network does not adversely affect the Internet. Internet uses various communication media such as telephone line, an Ethernet/OFC cable, or a microwave link. The Internet can carry data, voice, images, text, videos or transactions without any discrimination. Organizations now use the Internet to send electronic mail, message, to transmit documents and data. The organizations are organizing and participating in electronic conferences. Virtual conferences and on line classes/meetings/purchases/deliveries have proved to be the only means for survival of industries in the pandemic (Covid-19) worldwide.

Electronic commerce has come into existence because of the Internet. The benefits to an organization using electronic commerce are:

- Lowers the cost of processing, distributing, creating, storing and reliving information.
- Enables organizations to operate in the areas much beyond their physical location.
- Allows reduced inventories and overheads.
- Reduces the time between the payments and receipts of goods and services.

Other activities such as marketing, advertising, customer support, delivery, and payments are also done electronically.

Some of the Internet business models are:

The Virtual storefront is used for e-commerce. Some websites such as [www.amazon.com](http://www.amazon.com), [www.bigbasket.com](http://www.bigbasket.com), [grofers.com](http://grofers.com) and [www.swiggy.com](http://www.swiggy.com) are examples. Customers can select an item and place an order. Payment for these online purchases can be made online through credit/debit card, net-banking and through other mode of online payments like UPI (Unified Payments Interface), QR (Quick Response) scanning, and payment apps.

The e-commerce can also be categorised on the basis of the parties involved in the business. A business-to-consumer e-business involves an electronic retail home and customers. Such businesses are called B2C business. For examples, [www.amazon.com](http://www.amazon.com) is a B2C business. Business-to-business (B2B) involves businesses. In Consumer-to-Consumer business (C2C), the e-business is a facilitator only. OLX is an example. Governments also provide services to their citizens which is called G2C (Government-to-Citizens).

**COMPUTER AIDED DECISION MAKING**

Organisations use decision support system (DSS), also called Computer Aided Decision System (CADS), for decision-making activities that require judgment, determination, and a sequence of actions. A DSS increases the speed and efficiency of decision-making activities. It automates monotonous managerial processes, which means more of the manager's time can be spent on decision-making. It improves interpersonal communication within the organization. It is used when the problem is complex and the information needed to make the best decision is difficult to obtain and use. A DSS is designed with the help of decision makers and helps in decision-making process. It is also used for doing a thorough risk analysis of a project. A DSS includes a model of the real world, collection of facts - database, and a user interface. To establish requirement, analysts talks to the manager or users once or more than once. The analyst should have domain knowledge. The problem is identified and defined after the reality is examined.

### **CHECK YOUR PROGRESS**

**Q. 1. Give examples from day-today activities in your organization or any organization of your choice to support the statement, “managers need only information and not data”.**

**Ans.** This is a fact that managers need only information and not data. Data is a collection of individual facts or statistics. Data can come in the form of text, observations, figures, images, numbers, graphs, or symbols. For example, data might include individual prices, weights, addresses, ages, names, temperatures, dates, or distances. Data is a raw form of knowledge and, on its own, doesn't carry any significance or purpose. Information is knowledge gained through study, communication, research, or instruction. Essentially, information is the result of analyzing and interpreting pieces of data. Whereas data is the individual figures, numbers, or graphs, information is the perception of those pieces of knowledge. For example, a set of data could include temperature readings in a location over several years. Without any additional context, those temperatures have no meaning. However, when you analyze and organize that information, you could determine seasonal temperature patterns or even broader climate trends. Only when the data is organized and compiled in a useful way can it provide information that is beneficial to others. Managers need to take effective decisions and for that they need information, which is very crucial for an organization to successfully operate. Every organization runs on the basis of “who we are”, “for whom do we exist”, “how we do things”, “when we do”, “where we develop our activities”, “why we do like we do”. It is vital to organize and manage information in order to be successful.

**Q. 2. Give examples to highlight the applications of IT in :**

- (a) Public Relations    (b) Market research  
(c) Purchasing        (d) Healthcare  
(e) Education

**Ans.**

(a) In **Public Relations**, the Internet is used to communicate and build relationship with key publics, customers and consumers, employees, investors and donors, community members, government and the news media. Email is sent to the clients, meetings are organised through video conferencing and online tools are used for various promotional activities. Even the smallest and most traditional businesses now require the Websites that their customers expect, and the submission of a simple news release to a mass medium's electronic newsroom must satisfy the technological requirements of that medium. The contemporary practice of public relations requires practitioners to immediately respond to emerging

issues and crisis situations via Websites, blogs and other new media. Today, the choice of communication channels is dictated by technology: a practitioner must seriously consider which message forms and channels would be best for specific publics. Often, new technological forms and channels, such as electronic pitching, podcasting and blogging, prevail over traditional news releases and media kits. Public relations practitioners are among the heaviest users of today's communication technology.

(b) **Market research:** IT has a huge impact on market research, creating a new generation of faster and easier-to-use tools that help brands discover what consumers truly think. Technology has made it possible to accelerate traditional market research processes, making them more efficient and streamlining costs through innovative approaches that can be used as either an alternative or supplement to traditional methods. It is also helping brands find new ways to answer one of the fundamental questions that market research seeks to answer: what do consumers really think? Automation has benefitted insights-seekers by drastically shortening the time between putting a survey in-field and retrieving valuable consumer feedback. With automated market research, deliverables that once took weeks can now be completed in as little as a few hours. Automation has also streamlined the market research process by making survey research more repeatable. For example, brands can get feedback on innovation concepts or test their creative faster by inputting a few simple parameters into a templated online survey, rather than recreating the survey each time. Another technological innovation is the ability to process vast quantities of unstructured data at scale. Because we now have so much data about consumer behaviour, market researchers can analyse larger and more complex datasets with much faster turnaround times. Market research tools powered by AI can make fast work of this data, with the potential to deliver new insight into what consumers are thinking – and to identify trends that were previously difficult to pinpoint. When applied to a traditional market research task like ad testing, AI and machine learning can quickly compare creative to a database of ads, identifying whether the ad will perform based on what has performed well in the past.

(c) **Purchasing :** Both individual consumers and organisations are use IT in purchasing. Individual consumers now check things to buy online, compare qualities and rates, place order online, track orders and return the purchased products. Social media, chat boxes, or other automation tools help in connecting buyers and sellers. IT helps businesses in purchasing by streamlining processes, increasing information, and obtaining access to necessary data. Companies are using IT to compared products' prices and qualities.