

INFORMATION SYSTEMS CONCEPTS

Question 1

Identify and justify the type of each one of the following systems based on how they perform within an environment and/or certainty/ uncertainty:

- i. Marketing system
- ii Communication system
- iii Manufacturing system
- iv Pricing system
- v Hardware-Software system.

(5 Marks) (Nov 2009)

Answer

(i) Marketing system	Open System	The marketing system plays a pivotal role in the running of a business in the competitive environment. The objective of the system is to maximize customer satisfaction by providing a free interactive environment. The system takes input/feedbacks and facilitates the outcomes as products of the company and to create new customers.
(ii) Communication System	Open System	The communication system in a organization is a point of contact to balance the external influence and render its services to the customers. The system interacts freely with its environment by taking input and returning output.
(iii) Manufacturing System	Closed System	This system is in place to meet a particular objective. It does not interact neither with the environment nor changes with the change in the environment. A manufacturing unit is completely isolated from its environment for its operation.
(iv) Pricing System	Probabilistic and	The system has a probable behavior and interacts

	Open System	freely with its environment by taking inputs and returning outputs. The pricing system is a dynamic one which influences the form of profit and goodwill of an organization.
(v) Hardware-Software System	Closed Deterministic System	Since the interaction among the parts of the system is known with certainty and does not interact with the environment and does not change with the change in the environment. Here the requirements of the hardware and software inventory are known with certainty. The operational state of these systems is in a predictable manner.

Question 2

Give some important advantages of Information System in business (5 Marks) (May, 2010)

Answer

Some of the important advantages of information system in business are discussed as under:

- Information systems will help managers in effective decision making to achieve the organizational goal.
- Based on well designed information system, an organization will gain edge in the competitive environment.
- Information systems help in taking right decision at the right time.
- Innovative ideas for solving critical problems may come out from good information system.
- Knowledge gathered through information system may be utilized by managers in unusual situations.

If information system is viewed as a process, it can be integrated to formulate a strategy of action or operation.

Question 3

What is Decision Support System? Briefly explain three characteristics of Decision Support System. (5 Marks) (Nov 2008)

Answer

A **Decision Support System (DSS)** is considered as more flexible and adaptable for changing decision making requirements than traditional Management reporting system. This system emerged from the developments of interactive display technology, micro computing and easy-

to-use software tools. It handles unstructured and partially structured problems giving rise to unpredictable and unstructured information needs.

DSS can be defined as a system providing tools to the decision making managers to address unstructured/partially structured problems in their own personalized manner. It empowers the managers in decision making process.

There are three characteristics of a Decision Support System namely:

- (i) Semistructured or unstructured decision-making;
- (ii) Adaptable to the changing needs of decision makers; and
- (iii) Ease of learning and use.

Each of these are briefly discussed below:

- (i) *Semistructured and Unstructured Decisions*: Unstructured decisions and semistructured decisions are made when information obtained from a computer system is only a portion of the total knowledge needed to make the decision. DSS is well adapted to help with semistructured and unstructured decisions. A well-designed DSS helps in decision making process with the depth to which the available data can be tapped for useful information.
- (ii) *Ability to adapt to changing needs*: Semistructured and unstructured decisions often do not conform to a predefined set of decision-making rules. DSS provides flexibility to enable users to model their own information needs. Rather than locking the system into rigid information producing requirements, capabilities and tools are provided by DSS to enable users to meet their own output needs.
- (iii) *Ease of Learning and Use*: DSS software tools employ user-oriented interfaces such as grids, graphics, non-procedural fourth – generation languages (4GL), natural English, and easily read documentation. These interfaces make it easier for users to conceptualize and perform the decision-making process.

Question 4

Explain Executive Information System (EIS). What purpose does it serve? (5 Marks) (Nov 2008)

Answer

An Executive Information System (EIS) – sometimes referred to as an Executive Support System (ESS) is a DSS that is designed to meet the special needs of top-level managers. Some people use the terms “EIS” and “ESS” interchangeably, but others do not. Any distinction between the two usually is because Executive Support Systems are likely to incorporate additional capabilities such as electronic mail. An Executive Information System (EIS) is a tool that provides direct on-line access to relevant information in a useful and navigable format. The relevant information is timely, accurate, and actionable information about aspects of a business that are of particular interest to the senior manager. An EIS is easy to navigate so that managers can identify broad strategic issues, and then explore the information to find the root causes of those issues.

EIS serves the following major purposes:

- The primary purpose of an Executive Information System is to support managerial learning about an organization, its work processes, and its interaction with the external environment.
- A secondary purpose is to allow timely access to information so that based on the answers to questions, strategic decisions could be taken by a manager in time.
- It directs the attention of the management to specific areas of the organization or specific business problems. It makes managers and subordinates to work together to determine the root causes of issues highlighted by EIS.

Question 5

Briefly describe any three of the characteristics of the types of information used in Executive Decision making.
(5 Marks) (May, 2010)

Answer

The characteristics of the types of information used in Executive Decision Making are:

- **Lack of structure:** Many of the decisions made by executives are relatively unstructured. For instance, what general direction should the company take? Or what type of advertising campaign will best promote the new product line? These types of decisions are not as clear-cut as deciding how to debug a computer program or how to deal with an overdue account balance. Also, it is not always obvious which data are required or how to weigh available data for reaching at a decision. For example, how does an executive assess the future direction of the economy if the six sources on which that person typically depends for information, each forecasts something different? Even the portfolio of decisions that need to be made by the executive is an open issue. Should time be spent, for instance, considering new businesses to enter- or should the company concentrate on looking for new markets for existing products?
- **High degree of uncertainty:** Executives work in a decision space that is often characterized by a lack of precedent. For example, when the Arab oil embargo hit in the mid-1970s, no such previous event could be referenced for advice. Executives also work in a decision space where results are not scientifically predictable from actions. If prices are lowered, for instance, product demand will not automatically increase.
- **Future Orientation:** Strategic-planning decisions are made in order to shape future events. As conditions change, organizations must change also. It is the executive's responsibility to make sure that the organization keeps pointed toward the future. Some key questions about the future include: "How will future technologies affect what the company is currently doing? What will the competition (or the government) do next? What products will consumers demand five years from now? Where will the economy move next, and how might that affect consumer buying patterns?" As one can see, the answers to all of these questions about the future external environment are vital.

- **Informal source:** Executives, more than other types of managers, rely heavily on informal sources for key information. For example, lunch with a colleague in another firm might reveal some important competitor strategies. Informal sources such as television might also feature news of momentous concern to the executive – news that he or she would probably never encounter in the company's database or in scheduled computer reports. Besides business meals and the media, some other important information sources of information are meetings, tours around the company's facilities to chat with employees, brainstorming with a trusted colleague or two, and social events.
- **Low level of detail:** Most important executive decisions are made by observing broad trends. This requires the executive to be more aware of the large overview than the tiny items. Even so, many executives insist that the answers to some questions can only be found by mucking through details.

Question 6

What are the characteristics of Executive Information System? (4 Marks) (May 2011)

Answer

Major characteristics of an Executive Information System (EIS) are given as follows:

- EIS is a computer-based-information system that serves the information need of top executives.
- EIS enables users to extract summary data and model complex problems without the need to learn query languages, statistical formulae or high computing skills.
- EIS provides rapid access for timely information and direct access to the management reports.
- EIS is capable of accessing internal and external data both.
- EIS provides extensive online analysis tools like trend analysis, market conditions etc.
- EIS can easily be given a DSS support for decision making.

Question 7

Write short notes on the following:

(a) *Benefits of Expert Systems (4 Marks) (Nov 2010)*

(b) *Business applications of Expert systems for Management Support systems (4 Marks) (May 2011)*

Answer

(a) Benefits of Expert Systems:

These are given as follows:

- Expert Systems preserve knowledge that might be lost through retirement, resignation or death of an acknowledged company expert.

- .. Expert Systems put information into an active form so it can be summoned almost as a real life expert might be summoned.
 - .. Expert Systems assist novices in thinking the way experienced professional do.
 - .. Expert Systems are not subject to such human feelings as fatigue, being too busy, or being emotional.
 - .. Expert Systems can be effectively used as a strategic tool, in the areas of marketing products, cutting costs and improving products.
- (b) Business applications of Expert Systems for Management Support Systems are given as follows:
- .. **Accounting and Finance:** It provides tax advice and assistance, helping with credit authorization decisions, selecting forecasting models, providing investment advice.
 - .. **Marketing:** It provides establishing sales quotas, responding to customer inquiries, referring problems to telemarketing centers, assisting with marketing timing decisions, determining discount policies.
 - .. **Manufacturing:** It helps in determining whether a process is running correctly, analyzing quality and providing corrective measures, maintaining facilities, scheduling job-shop tasks, selecting transportation routes, assisting with product design and faculty layouts.
 - .. **Personnel:** It is useful in assessing applicant qualifications, giving employees assisting at filling out forms.
 - .. **General Business:** It helps in assisting with project proposals, recommending acquisition strategies, educating trainees, evaluating performance.

Question 8

Enumerate the characteristics of a Computer Based Information System. (4 Marks) (May 2011)

Answer

Major characteristics of a Computer Based Information System are as follows:

- All systems work for predetermined objectives and the system is designed and developed, accordingly.
- In general, a system has a number of interrelated and interdependent subsystems or components. No subsystem can function in isolation; it depends on other subsystems for its inputs.
- If one subsystem or component of a system fails, in most of the cases, the whole system does not work. However, it depends on 'how the subsystems are interrelated'.
- The way a subsystem works with another subsystem is called interaction. Different subsystems interact with each other to achieve the goal of the system.
- The work done by individual subsystem is integrated to achieve the central goal of the system. The goal of the individual subsystem is of lower priority than the goal of the entire system.