

**Course: Information system and data processing**

**Program: BS (SE)**

**Instructor: Muhammad Abrar Khan**

**Examination: Final paper**

**Total Marks: 50**

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**Note:** Attempt all questions. Use examples and diagrams where necessary.

**Q.1** What are systems? Explain in detail. Take a daily life example of a system (any organization or company) and explain its component one by one in detail.

**ANSWER:**

**SYSTEMS:**

A system is a group of elements that are integrated with the common purpose of achieving an objective.

A system is a group of elements that are integrated with the common purpose of achieving an objective. Organizations having common goals for achievement are functionally interactive units. All systems have inputs, outputs, and feedback, and maintain a basic level of equilibrium. For example, in the human body the heart functions to support the circulatory system, which is vital to the survival of the entire body.

**COMPONENTS OF A SYSTEM:**

Following are the important components of the system.

- Input elements  
Raw Data input to the computer system
- Process  
Computation, analysis, application of any model
- Output elements  
Results of computation or analysis
- Control mechanism  
Comparison of actual with expected
- Feedback system  
Corrective action
- Objectives  
Expected/Ideal output

**EXAMPLE:**

A simple example can be given of a purchase and sales system. In a typical purchase system information related to purchase of materials is kept, for instance,

- Orders for the purchase of various materials
- Status of deliveries received against specific orders
- Changes in the order quantity, time, day or other information
- Quality inspection reports and whether they need to be communicated to the supplier
- Updated status report of stock
- Issues made out of the stock

## **TYPES OF SYSTEMS:**

As far as we have studied four types of systems.

1. Open loop system.
2. Closed loop system.
3. Open systems.
4. Closed systems.

### **1. OPEN LOOP SYSTEMS:**

The determinant factor in an open loop system is that the information from the system is not used for control purposes. This is done by using the output to generate feedback for control purposes.

- The output is not coupled to the input for measurement.
- Hence the components of an open loop system do not include control and feedback mechanism due to non-existence of internally defined objectives. That is, Input, Process, Output.
- Continually receives input from its environment (host system)
- Continually produces output to its environment (host system)
- Evolves as a result of these exchanges – new information stimulates adaptation, renewal and reinvention
- The whole is more than the sum of the parts (which is often how high performance teams are described)

**EXAMPLE:** If customer feedback is not taken for the purchase of books for the store

### **2. CLOSED LOOP SYSTEMS:**

Is a system where part of the output is fed back to the system to initiate control to change Either the activities of the system or input of the system

- Control Mechanism
- Feedback System
- Objectives
- interactions occur only among the elements in the system
- boundaries are rigid, restricting inflow or outflow (exchange) of information or matter
- organisation decreases (stagnation)
- entropy (disintegration) is the eventual result

**EXAMPLE:** If Customer feedback/interest is taken into account when selecting the books to be purchased and displayed in the store.

### **3. OPEN SYSTEM:**

Under open system organization theory, the characteristics of open system organization are shaped by specific and general environmental influences. Specific influences are the people and groups the organization deals with on a regular basis: customers, suppliers, distributors, regulators and competitors.

Open system organizations consist of lots of subsystems such as departments and project teams. If one part of the organization fails, it doesn't mean the entire organization falls apart. In a healthy organization, the people in different departments, branches and teams interact and work together for their benefit and the company's.

- A system that is connected to its environment by means of resource flows is called an open system.
- The environment exerts influence on the system and the system also influences the environment.

Closed systems are inflexible and stagnant. In a heavily bureaucratic organization, it's important to follow procedure, turn in reports and attend meetings even if they don't produce any worthwhile results. In an open-system organization, the outcome matters more than the process; if the standard approach doesn't get results, it's okay to change.

Closed systems can be more comfortable for the people inside them. People in closed systems always think they know the answers; people in open systems have to accept there's no one perfect way to succeed.

**EXAMPLE:**

Examples of closed systems include monopolies that can dictate terms to customers and rigid bureaucracies that resist any influence on their policies. An example of open system organization are the many businesses that respond to their environment.

**4. CLOSED SYSTEM:**

Closed system in management is all about transparency where all corporate matters stay within a well defined boundary and only certain matters are let out based on the management decision.

It is hard to believe that there are organizations who are completely “ open management” where all types of matters are transparent to the employees. I am curious to learn who and which type of organizations are open and what type of successes these organizations achieve with this type of management.

- A system that is not connected with its environment
- Neither environment exerts any influence on the system nor does the system influence the environment.

**EXAMPLE:**

**Production Line,**

A production line is an example of a closed system within an organization. The daily work that takes place on production or assembly lines can be insulated from outside factors such as day-to-day meetings between upper-level executives, or information from other similar, competing production lines. Instead, workers on an assembly line are generally only responsible for completing their tasks on the line, depending on what type of line it is.

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**Q.2** What is a Management information system? Take an example of MIS of any organization and elaborate in your own words.

**ANSWER:**

**MANAGEMENT INFORMATION SYSTEM:**

MIRS makes information available to relevant users by producing pre-determined and pre-designed reports required by the management. Management information system helps middle level management planning, controlling and decision making. The data stored can be used or manipulated to produce differently defined reports from pre-defined reports. It can be presented graphically or pictorially. The reports generated by the MIS are used for analytical decision making by the management. The application software can construct projections, build scenarios, do what if analysis to enable better decision making.

A management information system (MIS) is a computer system consisting of hardware and software that serves as the backbone of an organization's operations. An MIS gathers data from multiple online systems, analyzes the information, and reports data to aid in management decision-making.

The purpose of an MIS is improved decision-making, by providing up-to-date, accurate data on a variety of organizational assets, including:

- Financials
- Inventory
- Personnel
- Project timelines
- Manufacturing

- Real estate
- Marketing
- Raw materials
- R&D

**PTCL MIS:**

MIS of PTCL is divided into two stages:

1. Strategic, management, knowledge and operational level.
2. Functional areas such as sales and marketing, manufacturing finance, accounting and HR.

It consist of following elements:

- Computerized fault management system CFMS.
- Business and customer care system BCCS.
- Partial office automation system.
- Human resource management information system HRMIS.
- Structural analysis program SAP.



**Business and customer care**

**system BCCS:**

- PTCL's whole network runs on this software.
- Costs approximately 3 Arab Rupees.
- It is operated at all business levels of PTCL. i.e operational level, Middle level, Top level

**BSSC Functions:**

- Franchise and payphone management.
- customer information/ Database.
- Product/ Service information.
- Sales management
- Order entry.
- Order management.
- Resource Management.

**Partial Automation Office:**

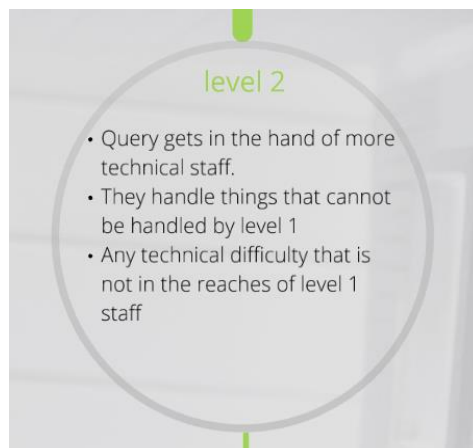
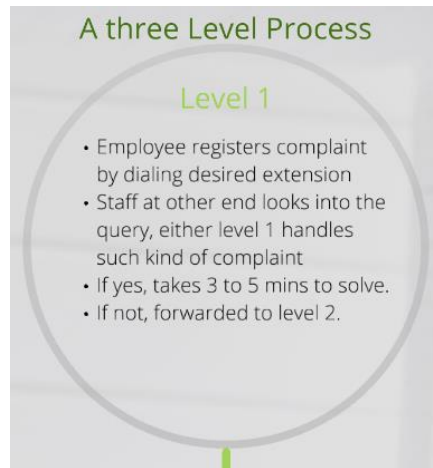
PTCL also implements a partial office automation system, which is based on databases. Office automation is a great way to save money and time while protecting your important business information.

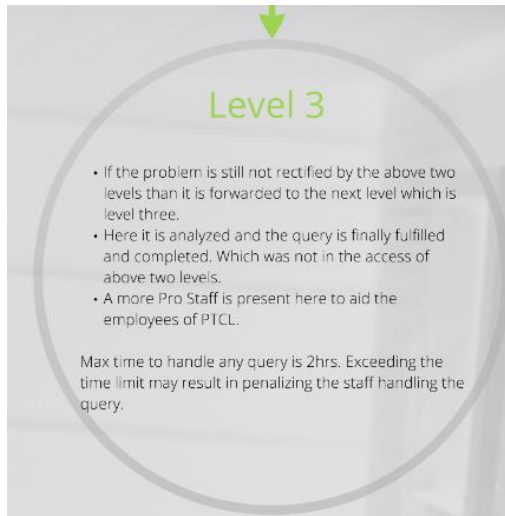
**HRMIS (Human resource management information system):**

- PICL introduced “HR Online hiring nagerrent systerr”.

- A Special emphasis is being laid on developing a sense of responsibility and politeness in the minds of employees especially in the lower management and staff.
- Training schools like telecom staff college, regional telecom training schools and divisional telecom training centers are also charged with the trends in technical and managerial training.
- This entire training institute is very important for PTCL, as it helps organizations with respect to trends.

#### **IT SERVICE DESK:**





**Q.3** Explain Marketing Information system and its types in detail.

Note: You should make your answer understandable by taking a proper example.

**ANSWER:**

**MARKETING INFORMATION SYSTEM:**

MKIS is a type of Information System that helps the firm to achieve following objectives:

- Identification of customers for firm 's products and services.
- Development of those products and services to meet customers' needs
- Promotion of the products and services, and
- Provision of after sale customer support

A marketing information system (MIS) is intended to bring together disparate items of data into a coherent body of information. An MIS is, as will shortly be seen, more than raw data or information suitable for the purposes of decision making. An MIS also provides methods for interpreting the information the MIS provides. Moreover, as Kotler's definition says, an MIS is more than a system of data collection or a set of information technologies:

"A marketing information system is a continuing and interacting structure of people, equipment and procedures to gather, sort, analyse, evaluate, and distribute pertinent, timely and accurate information for use by marketing decision makers to improve their marketing planning, implementation, and control".

**TYPES OF MIS:**

1. **Internal Records:** The Company can collect information through its internal records consisting of sales data, customer database, product database, financial data, operations data, etc. The detailed explanation of the internal sources of data is given below:
  - The information can be collected from the documents such as invoices, transmit copies, billing documents prepared by the firms once they receive the order for the goods and services from the customers, dealers or the sales representatives.
  - The current sales data should be maintained on a regular basis that serves as an aide to the Marketing Information System. The reports on current sales and the inventory levels help the management to decide on its objectives, and the marketers can make use of this information to design their future sales strategy.

- The Companies maintain several databases such as \*Customer Database- wherein the complete information about the customer's name, address, phone number, the frequency of purchase, financial position, etc. is saved.  
\*Product Database- wherein the complete information about the product's price, features, variants, is stored.  
  
\*Salesperson database, wherein the complete information about the salesperson, his name, address, phone number, sales target, etc. is saved.

2. **Marketing Intelligence System:** The marketing intelligence system provides the data about the happenings in the market, i.e. data related to the marketing environment which is external to the organization. It includes the information about the changing market trends, competitor's pricing strategy, change in the customer's tastes and preferences, new products launched in the market, promotion strategy of the competitor, etc.

In order to have an efficient marketing Information System, the companies should work aggressively to improve the marketing intelligence system by taking the following steps:

- Providing the proper training and motivating the sales force to keep a check on the market trends, i.e. the change in the tastes and preferences of customers and give suggestions on the improvements, if any.
- Motivating the channel partners viz. Dealer, distributors, retailers who are in the actual market to provide the relevant and necessary information about the customers and the competitors.
- The companies can also improve their marketing intelligence system by getting more and more information about the competitors. This can be done either by purchasing the competitor's product, attending the trade shows, reading the competitor's published articles in magazines, journals, or financial reports.

3. **Marketing Research:** The Marketing Research is the systematic collection, organization, analysis and interpretation of the primary or the secondary data to find out the solutions to the marketing problems. Several Companies conduct marketing research to analyze the marketing environment comprising of changes in the customer's tastes and preferences, competitor's strategies, the scope of new product launch, etc. by applying several statistical tools. In order to conduct the market research, the data is to be collected that can be either primary data (the first-hand data) or the secondary data (second-hand data, available in books, magazines, research reports, journals, etc.)

The secondary data are publicly available, but the primary data is to be collected by the researcher through certain methods such as questionnaires, personal interviews, surveys, seminars, etc.

Marketing research contributes a lot in the marketing information system as it provides the factual data that has been tested several times by the researchers.

4. **Marketing Decision Support System:** It includes several software programs that can be used by the marketers to analyze the data, collected so far, to take better marketing decisions. With the use of computers, the marketing managers can save the huge data in a tabular form and can apply statistical programs to analyze the data and make the decisions in line with the findings.

Thus, the marketers need to keep a check on the marketing environment, i.e. both the internal (within the organization) and the external (outside the organization, so that marketing policies, procedures, strategies can be designed accordingly.

**Q.4** Why Decision Making is an important factor to run an organization. Explain your answer with the help of a proper example.

**ANSWER:**

Decision-making is the action or process of thinking through possible options and selecting one.

It is important to recognize that managers are continually making decisions, and that the quality of their decision-making has an impact—sometimes quite significant—on the effectiveness of the organization and its stakeholders. Stakeholders are all the individuals or groups that are affected by an organization (such as customers, employees, shareholders, etc.).

Members of the top management team regularly make decisions that affect the future of the organization and all its stakeholders, such as deciding whether to pursue a new technology or product line. A good decision can enable the organization to thrive and survive long-term, while a poor decision can lead a business into bankruptcy. Managers at lower levels of the organization generally have a smaller impact on the organization's survival, but can still have a tremendous impact on their department and its workers. Consider, for example, a first-line supervisor who is charged with scheduling workers and ordering raw materials for her department. Poor decision-making by lower-level managers is unlikely to drive the entire firm out of existence, but it can lead to many adverse outcomes such as:

- reduced productivity if there are too few workers or insufficient supplies,
- increased expenses if there are too many workers or too many supplies, particularly if the supplies have a limited shelf life or are costly to store, and
- frustration among employees, reduced morale, and increased turnover (which can be costly for the organization) if the decisions involve managing and training workers.

### **You'll save time and make better use of resources.**

A lack of process clarity guarantees a slower, more convoluted path to the desired outcome. Or even a disappointing outcome. This is true whether you are doing something like building a boat or making a decision. If you step logically through a proven process, you will waste less time and make use of the right resources at the right time. If you follow a muddled process to build a boat and want expert help for all aspects of the process, you would have to have all the experts present the entire time and they would be stepping all over each other trying to advise you. You would never build a boat that way. You would learn the process, follow it in sequence, and call on the help you needed at each step. So why do you make decisions by hauling all the experts into a room at one time and trying to tackle all the steps simultaneously?

### **People will accomplish more faster.**

When you know exactly what you are trying to achieve, you can do it faster. Period. I doubt that requires more explanation. Speed comes from greater clarity of purpose and process.

### **EXAMPLE:**

I decided to choose to not only look locally for employees but to search for remote workers and digital nomads who could provide a unique set of tools. I wanted to build a team that was culturally diverse so that we could make innovative decisions that would be out-of-the-box to many organizations.

Once I began to build my A-Team, we utilized organizational apps like Asana, Slack and our own email client, Mailbird, to ensure that we were on top of all of our projects. We held bi-monthly meetings on Zoom or Skype, and we brainstormed like crazy. If I hadn't stepped out of the tried-and-true methods of hiring, I wouldn't have the rock-star team that I have today!