I.P.T Study Notes #1

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| Questions | Answers |
| What is an Information System?  What are the components of an Information System?  What is the environment of an Information System?   * Who does it assess?   What does an Information system table look like?  What is Collection?   * Examples?   What is Organising?   * Examples?   What is Storing and Retrieving?   * Examples?   What is Processing?   * Examples?   What is Displaying?   * Examples?   What is Analysing?   * Examples?   What are the Social ethical issues for each component?  **Collecting?**  **Organising?**  **Analysis?**  **Storing/Retrieving?**  **Processing?**  **Transmitting and Receiving?**  **Displaying?**  What is an IPO?  What is a User?  What is the difference between data and information?  What is a computer algorithm?  What is a DBMS?  What is the Structure of a Relational Database?  What is a Data Dictionary?   * What does a Data Dictionary table look like? * An Example?   What is Query Language?   * What are the commands or instructions?   What are the **Advantages** of digital data representing data?  What are the **Disadvantages** of digital data representing data?  What is Validation?   * What type of Validations are there?   What is Digital Media?   * Components? * What is Text and Numbers? * What is Hypertext? * What is Audio? * What is Images?   What is a Context Diagram?  What is Conversion?  How many conversion system are there?   * What is Direct Conversion? * Disadvantages? * What is Parallel Conversion? * Disadvantages? * What is Pilot Conversion? * What is Phased Conversion? * Disadvantages? | An Information system has a certain task with addresses the certain need for a group(s) or individuals.  The main components are:   * Collecting * Organising * Analysing * Storing/retrieving * Processing * Transmitting/receiving * Displaying   The environment is what makes up the system itself. It is influenced by the customer or by the system itself. **It is not part of the information system itself**.  This includes the users (people or clients) who do not directly interact or perform the processes within the system.  **Information System Table**  **Collecting** is a process by which data is entered into or captured by a computer system.  **Examples** are Image Capture/Camera, Sound Capture/ Microphone.  **Organising** is the process by which data is structured into a form appropriate for the use of other processes - such as the format in which data will be represented. An **example** of organising is binary.  **Storing and Retrieving** is the process by which data and information is saved and accessed later.  **Examples** are USB’s, Hard Drives, and Databases.  **Processing** is a procedure that manipulates data and information to produce a new value or result. An **example** of processing is editing an essay using Microsoft word.  **Displaying** is information process by which information is output from the system to meet a purpose. **Examples** are monitor, speakers, and fax.  **Analysing** is the process by which data is interpreted, transforming it into information. An **example** is graphs, trends.  **Summary of Social and Ethical Issues in Information System**  Social and ethical issues in **collecting**   * bias in the choice of what and where to collect data * accuracy of the collected data * copyright and acknowledgment of source data when collecting * the rights to privacy of individuals on whom data is collected   Social and ethical issues associated with **organising**   * current trends in organising data, such as: * the increase in hypermedia as a result of the world wide web * the ability of software to access different types of data * a greater variety of ways to organise resulting from advances in display technology   Social and ethical issues associated with **analysis**   * unauthorised analysis of data * data incorrectly analysed   Social and ethical issues associated with **storing/retrieving**   * the security of stored data * unauthorised retrieval of data * advances in storage and retrieval technologies   Social and ethical issues associated with **processing**   * types of computers on networks * ownership of processed data * bias in the way participants in the system process data   Social and ethical issues associated with **transmitting and receiving**   * **accuracy** of data received from the **Internet** * **security** of data being **transferred** * **net-etiquette** * **acknowledgment** of data source * global network issues, time zones, date fields, exchange rates * current developments and future trends in digital communications, radio and television * the impact of the Internet on traditional business   Social and ethical issues associated with **displaying**   * communication skills of those presenting displays * appropriate displays for a wide range of audiences, including: * standards for display for the visually impaired * displays suitable for young children   **IPO** is Input, Process, Output. Examples are the digestive system, an air conditioner.  **User** is a person who views or uses the information output from an information system.  **Data** is raw material used by information processes. **Information** is the output displayed by an information system.  A computer algorithm is a sequence of instructions given by a **specific language program** given by the user for a **specific task**.  Database Management System, builds, maintains and provides access to a database. It is the software that allows you to manage a database.  A database is made up of related files or tables, each file/table containing related fields, which are in turn made up of values that contain related characters (such as dates, time, text, numbers etc.  **Relational Database**    It is a plan/definition of any databases. It is created before the database is built.  The data in a database is accessed using a Query Language. The command or instructions are:   * **SELECT - get information** * **UPDATE - update information** * **INSERT - insert new information** * **DELETE - delete information**   **Advantages of Digital Data**   * **Ease of editing**: Data in the form of images, audio, video, text and numbers, can be easily updated and modified as required. * **Ease of storage:** Large amounts of data can be stored on a disk or CD. It can be retrieved, revised and rearranged as appropriate. * **Quick search**: Large amounts of data can be searched and sorted quickly and accurately. * **Performing calculations**: Precise and complex calculations can be performed on the data very quickly. * **Ease of transmission:** Data can be easily exchanged.   **Disadvantages of Digital Data**   * The **cost** of hardware, software and installation may be prohibitive. * **Compatibility** with existing technology must be investigated. * The **participants** in the information system need to be **trained**. People are often reluctant to adopt new methods. * Social and ethical issues such as **privacy, security, copyright** and the **changing nature of work** need to be addressed. * Quality of Digitised Data may be less/lost from Analog Data   **Validation** aims to make sure that data is sensible, reasonable, complete and within acceptable boundaries   * **Range Check** - A range check is commonly used when you are working with data that consists of numbers, currency or dates/times. * **Type Check** - Ensure that the correct type of data is entered into that field. * **Length Check** - A length check could be set up to ensure that exactly 8 (or 10) numbers are entered into the field. * **Lookup** - Where you have a field which contains a limited list of items which will be regularly entered then a lookup list can help reduce errors. * **Presence Check** - A presence check makes sure that a critical field cannot be left blank, it must be filled in.   Any data that has been converted to a form that a computer can understand  It can be broken up into:   * Text and numbers. * Hypertext. * Audio. * Images.   Written characters, letters, numbers etc.   * Hyper = above or more. * Hypertext allows a user to navigate through a link to an element.   Sound that has been digitised   * Pictures can be either bitmapped or vector. * Paint graphics are saved as bitmaps. * Each individual pixel is saved. * Pixel = **Pic**ture **El**ement (smallest part of the image)   To show the overall “context”/scope of the system  Conversion involves changing from the old system to the new system.  Four (Direct, Parallel, Phased, Pilot).  **Different Types of Conversion**  **Direct conversion** involves an immediate change to the new system.   * A date is chosen on which the old system ends and the new system begins. * All data from the old system is transferred to the new system. * Direct conversion is not popular even though there are minimal transition costs. * It does not allow time to check whether the new system will operate correctly and that participants understand the system. * If the new system fails or problems occur, the old system is not available as a backup.   **Parallel conversion** involves the old and new systems working together for some time.   * Participants can compare the two systems and obtain a good understanding of the differences between them. * If there are any problems with the new system they can be solved before the old system is discontinued. * However, parallel conversion results in additional workloads for participants as they must operate both systems. * It may also result in confusion about which system has the correct data.   **Pilot conversion** involves trialling the new system in a small part of the organisation.   * The old system is still available if the new fails or experiences problems. * Pilot conversion is usually undertaken by a keen group of participants who appreciate the benefits of the new system. * If pilot implementation works, it is usually easier to motivate the other participants of the organisation to adopt the new system.   **Phased conversion** involves the gradual implementation of the new system.   * Certain operations of the new system are implemented while the remaining operations are completed by the old system. * When one operation of the new system is successful, another operation is implemented until the new system is Planning, design and implementation fully operational. * Each operation is individually tested. * If there is a problem with a certain operation it is possible to switch back to the old system. * Unfortunately phased conversion is often confusing, with some participants working on the old system and some on the new system. |

