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(An Autonomous Institute of Govt. of Rajasthan)

Date: 31.01.18

B. Tech VI Sem (CS&IT) **Subject: Human Computer Interface**

Model Test Paper with Answer

Q 1. What is HCI?

Q 2. Who is involved in HCI?

Q 3. What is meant by visual perception?

Q 4. What are the input and output channels of human?

Q 5. What is sensory memory?

Q 6. What is long term memory? And mention its types.

Q 7. Differentiate deductive reasoning, inductive reasoning and abductive reasoning?

Q 8. What is execution and evaluation loop?

Q 9. What is ergonomics?

Q 10. What are paradigms and give examples?

Ans 1.

Human-computer interaction (HCI) is the study and planned design of human and computer activities. HCI uses productivity, safety and entertainment to support and fulfill human-computer activities and is applied to various types of computer systems, including air traffic control, nuclear processing, offices and computer gaming. HCI systems are easy, safe, effective and enjoyable.

Ans 2.

User: "user", we may mean an individual user, a group of users working together. An appreciation of the way people's sensory systems (sight, hearing, touch) relay information is vital. Also, different users form different conceptions or mental models about their interactions and have different ways of learning and keeping knowledge and. In addition, cultural and national differences play a part.

Computer: When we talk about the computer, we're referring to any technology ranging from desktop computers, to large scale computer systems. For example, if we were discussing the design of a Website, then the Website itself would be referred to as "the computer".

Devices such as mobile phones or VCRs can also be considered to be “computers”.

Interaction: There are obvious differences between humans and machines. In spite of these, HCI attempts to ensure that they both get on with each other and interact successfully. In order to achieve a usable system, you need to apply what you know about humans and computers, and consult with likely users throughout the design process. In real systems, the schedule and the budget are important, and it is vital to find a balance between what would be ideal for the users and what is feasible in reality

Ans 3.

Visual perception is the ability to see, organize, and interpret one's environment. Visual perception is the ability to interpret the surrounding environment by processing information that is contained in visible light. The resulting perception is also known as eyesight, sight, or vision (adjectival form: visual, optical, or ocular). The various physiological components involved in vision are referred to collectively as the visual system, and are the focus of much research in linguistics, psychology, cognitive science, neuro science, and molecular biology, collectively referred to as vision science.

Ans 4.

Input in human is mainly though the senses and output through the motor control of the effectors. There are five major senses: Sight, Hearing, Touch, Taste, and Smell. There are a number of effectors: Limbs, Fingers, Eyes, Head, Vocal system.

Ans 5.

Buffers for stimuli received through senses

- Iconic memory: visual stimuli
- Echoic memory: aural stimuli
- Haptic memory: tactile stimuli

Examples: “sparkler” trail, stereo sound

Ans 6.

Long-term memory is intended for the long-term storage of information. There are two types of long-term memory: episodic memory and semantic memory.

Episodic memory: It represents our memory of events and experiences in a serial form. It is from this memory that we can reconstruct the actual events that took place at a given point in our lives.

Semantic memory: is a structured record of facts, concepts and skills that we have acquired. The information in semantic memory is derived from that in our episodic memory, such that we can learn new facts or concepts from our Experiences.

Ans 7.

- Deductive reasoning derives the logically necessary conclusion from the given premises.
- Induction is generalizing from cases we have seen to infer information about cases we have not seen.
- Abduction reasons from a fact to the action or state that caused it. This is the method we use to derive explanations for the events we observe.

Ans 8.

- user establishes the goal
- formulates intention
- specifies actions at interface
- executes action
- perceives system state
- interprets system state
- evaluates system state with respect to goal

Ans 9

It is a Study of the physical characteristics of interaction. Also known as human factors – But this can also be used to mean much of HCI. Ergonomics is good at defining standards and guidelines for constraining the way we design certain aspects of systems

Examples: ⌕arrangement of controls and displays e.g. controls grouped according to function or frequency of use, or sequentially surrounding environment e.g. seating arrangements adaptable to cope with all sizes of User.

Ans 10.

paradigms is a distinct set of concepts or thought patterns, including theories, research
methods, postulates, and standards for what constitutes legitimate contributions to a field. Paradigms promote the usability of interactive systems .Predominant theoretical frameworks or scientific world views

a. Aristotelian, Newtonian, Einsteinian (relativistic) paradigms in physics- Understanding HCI history is largely about understanding a series of paradigm shifts

b. Not all listed here are necessarily "paradigm" shifts, but are at least candidates

History will judge which true shifts Examples are: Batch processing, Timesharing, Networking, Graphical display, Microprocessor