

# HUMAN COMPUTER INTERACTION Marks (30)

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**Q1:** **a) What is the main aim of the Don Norman's Book (The Design of Everyday things)?** **Marks (02)**

**Ans:** "The design of everyday things" shows that good and usable design is possible. The rules are simple, make things visible, exploit natural relationships that couple function and control, and make intelligent use of constraints and guide the user effortlessly to the right action on the right control at the right time.

**b) Explain Deductive and Abductive reasoning with examples.** **(04)**

**Ans:** The difference between abductive reasoning and inductive reasoning is that both use evidence to form guesses that are likely but not guaranteed to be true. Abductive reasoning looks for cause-and-effect relationships, while induction seeks to determine general rules

- Deductive reasoning relies on a general statement or hypothesis. Sometimes it is called a premise or standard to be true. The premise is used to reach a specific logical conclusion. A common example is the if/then statement. If  $A = B$  and  $B = C$ , then deductive reasoning tells us that  $A = C$ .
- Abductive is a form of logical inference, which starts with an observation or set of observations and then seeks to find the simplest and most likely explanation for the observations. Example of abductive reasoning is; Sam drives fast when drunk if I see Sam driving fast, assume drunk.

**Q2: Analyze the following scenario and write down seven stages of action for given particular Scenario for solution. Scenario is Suppose I want to go to University, but the tyre of my car was punctured, now I have to repair it.** **(06)**

You are required to write the seven stages of Gulf of Execution and Evaluation to solve the scenario.

- Ans:**
1. Forming the goal
  2. Forming the intention
  3. Specifying an action
  4. Executing the action
  5. Perceiving the state of the world
  6. Interpreting the state of the world
  7. Evaluating the outcome

**Q3:**

**a) Differentiate slip and mistake.**

**(03)**

**Ans:**

- **Slip:** A slip is when the user has the correct mental model of the interaction yet makes an error on accident.
- **Mistake:** A mistake is usually accidental you know it is wrong.

**b) Explain self-perception and object perception.**

**(03)**

**Ans:**

- Self-perception is a process by which people develop a view of themselves. It is developed from social interaction within different groups.

Self-perception has three parts:

- Self-concept
- Self-esteem
- Self-presentation

- Object perception is a process by which people develop a view of objects they see.

**Q4:**

**a) Write the steps involved in perceptual process.**

**(02)**

**Ans:**

1. The Environmental Stimulus
2. The Attended Stimulus
3. The Image on the Retina
4. Transduction
5. Neural Processing
6. Perception
7. Recognition
8. Action

**b) Differentiate between perception and recognition.**

**(04)**

**Ans:**

- At the perception stage, you have become aware of that there is something out on the pond to perceive. We actually perceive the stimulus object in the environment. It is at this point that we become consciously aware of the stimulus.
- Perception does not just involve becoming consciously aware of the stimuli. It is also necessary for our brain to categorize and interpret what it is we are sensing. Our ability to interpret and give meaning to the object is the next step, known as recognition. It is at the recognition stage of the perceptual process that you realize that there is a duck floating on the water.

**Q5:**

**a) A graphic designer, wants to design a 3d shape using Adobe Illustrator, he select a Shape, apply some gradient on it and then apply drop shadow effect. In the given scenario in the light of interaction, identify the Goal, Problem domain and the task. (03)**

**Ans:**

The goal was to make the shape look more realistic and give 3D look. The problem domain was to give a decent and good-looking gradient so that it look more realistic and colorful. The task was to give 3d touch to shape by giving drop shadow and gradient.

**b) Explain Gulf of Execution and Gulf of Evaluation.**

**(03)**

**Ans:**

- The gulf of execution is the difference between the intentions of the users and what the system allows them to do or how well the system supports those actions. For example, if a person only wants to record a movie currently being shown with her VCR, she imagines that it requires hitting a 'record' button. However, if the necessary action sequence involves specifying the time of recording and selection of a channel there is a gulf of execution.
- The gulf of evaluation is the difficulty of assessing the state of the system and how well the artifact supports the discovery and interpretation of that state. The gulf is small when the system provides information about its state in a form that is easy to get, is easy to interpret, and matches the way the person thinks of the system.