**HUMAN COMPUTER INTERACTION**

**Mid Term Assignment**

**ID. 13794**

**Name. Muhammad Zarak Khan**

**Q1:**

1. **What is the main aim of the Don Norman’s Book (The Design of Everyday things)? (02)**

Ans: The Design of Everyday Things shows that good, 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. The goal: 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**: Deductive reasoning** Deductive reasoning is a type of deduction used in science and in life. It is when you take two true statements, or premises, to form a conclusion. For example, A is equal to B. B is also equal to C. Given those two statements, you can conclude A is equal to C using deductive reasoning.

Now, let’s look at a real-life example.

1. All dolphins are mammals.
2. All mammals have kidneys.

Using deductive reasoning, you can conclude that all dolphins have kidneys. Remember, for this to work, both statements must be true.

 **Abductive reasoning**

 Another form of scientific reasoning that doesn't fit in with inductive or deductive reasoning is abductive. Abductive reasoning usually starts with an incomplete set of observations and proceeds to the likeliest possible explanation for the group of observations, according to Butte College. It is based on making and testing hypotheses using the best information available. It often entails making an educated guess after observing a phenomenon for which there is no clear explanation.

For example, a person walks into their living room and finds torn up papers all over the floor. The person's dog has been alone in the room all day. The person concludes that the dog tore up the papers because it is the most likely scenario. Now, the person's sister may have brought by his niece and she may have torn up the papers, or it may have been done by the landlord, but the dog theory is the more likely conclusion.

**Q2:**

**Analyze the following scenario and write down seven stages of action for given particular (06)**

**scenario for solution.**

**Scenario is:**

**Suppose I want to go to University, but the tyre of my car got punctured. Now I have to repair it.**

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

**Ans.**

To solve the given scenario we have to identify and then apply the seven stages of Gulf of Execution and Evaluation as follow,

1, In the first stage we have to establish the goal. The goal here is to I have to reach to the university, but the tyre of my car has got punctured so I have to repair the tyre hense the goal is established.

2.In the second stage I have to make intention for doing for doing the task to what would I do to make my goal satisfy. So I would have to repair my car’s tyre this will satisfy my goal to reach my university.

3. The third stage is for specifying an action that what I have to do to achieve my goal my intentions. I need to go to tyre shop to repair my cars tyre to complete my requirements in my goal.

4. in this fourth stage I have to execute the set of actions to achieve my goals, I would repai my car to reach to the university.

5. In the fifth stage we have to perceive the stage of the system I have to use my senses to gather the information so when I repair my car so it will sense that my repaired car would be able to reach to the university.

6. In the second last stage we will interrupt the state of system. That what has changed? So the punctured tyre of my car has been repaired and now it is able to work properly and reach to the university.

7. The last stage is to evaluate system state with respect to goal, I means did I have achieved my goal? So my car now reach the university without any worries. So I achieved my goal.

**Q3:**

**a) Differentiate slip and mistake. (03)**

**b) Explain self perception and object perception. (03)**

Ans. A **slip** is when the user has the correct mental model of the interaction yet makes an error on accident. For instance, if two buttons are close together and you click one rather than the other on accident, that would be a slip. These can often be addressed through things such as making touch targets bigger and adding separation between buttons. From the screenshot, you can see that the Publish button is very large and there’s nothing next to it to accidentally press. (The decision to have the Move to trash button on the same row is rather strange, but it is sufficiently far away that I did not accidentally click on it). This is not the type of error I made.

A **mistake** stems from the user having the incorrect mental model. That is precisely what happened to me. I did not accidentally press the Publish button; I intentionally pressed it but I had the wrong idea to what would happen

**Ans b.**

**Self**-**perception** theory posits that people determine their attitudes and preferences by interpreting the meaning of their own behavior. Critcher and Gilovich looked at whether people also rely on the unobservable behavior that is their mindwandering when making inferences about their attitudes and preferences.

**Object perception** does accord with principles governing the motions of material bodies: Infants divide perceptual arrays into units that move as connected wholes, that move separately from one another, that tend to maintain their size and shape over motion, and that tend to act upon each other only on contact.

**Q4:**

1. **Write the steps involved in perceptual process. (02)**

Ans.The perceptual process is the sequence of psychological steps that a person uses to organize and interpret information from the outside world. The steps are:

* Objects are present in the world.
* A person observes.
* The person uses perception to select objects.
* The person organizes the perception of objects.
* The person interprets the perceptions.
* The person responds.
1. **Differentiate between perception and recognition. (04)**

Ans: perception is organization, identification, and interpretation of sensory information Perception: It basically means the way in which something is regarded, understood, or interpreted. Since, images are perceived by humans, therefore it varies from human to human.

Recognition is the act of recognizing or the condition of being recognized. . Recognition: In image processing object recognition is a method which helps to identify objects which are present in an image.It categorizes the objects, e.g. a dog present in an image can be recognized as a dog only.

**Q5:**

1. **A graphic designer, wants to design a 3d shape using Adobe Illustrator, he select a (03)**

 **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.**

**Ans.** Goal = wants to design a 3d shape using adobe illustartor.

 Domain = Graphic designing .

Task = selects shape, apply some gradient, apply drop effect.

1. **Explain Gulf of Execution and Gulf of Evaluation. (03)**

**Ans.**

**Gulf of execution**

**Gulf of execution** is the degree of ease with which a user can understand the current state of a system. It is the difference between the intentions of the users and what the system allows them to do.

For example, a person can look at a light switch and easily tell what the current state of the system is (i.e., whether the light is on or off) and how to operate the switch. This means that the gulf of execution is small. Norman states that, in order to design the best interfaces, the gulf must be kept as small as possible.

**Gulf of evaluation**

**Gulf of evaluation** is the degree of ease with which a user can perceive and interpret whether or not the action they performed was successful. This gulf is small when the system provides information about its state in a form that is easy to receive, interpret, and matches the way the person thinks of the system.

Consider the same light switch example; if a person looks at a light switch, the gulf of evaluation is very small since, with one switch, the user will immediately know if their action was successful. An example of a large gulf of evaluation is when an application has a spinning wheel to show a “loading” state after the user performs an action. The wheel alone is not enough for the user to interpret the progress that ​the system is making in response to their action. The gulf can be shortened by having a loading bar instead.