Q1 a.

1. Data and Statistics Analysts - This discipline is associated with gathering and understanding of user information in order to develop a user interface. Goals for the UI should be inferred from the requirements gathered.
2. Usability - The discipline of usability is understood by how efficient the interface is for the user. It should be tested using various methods like the Cognitive Walkthrough or by using Personas in order to demonstrate the Universal Design of the Interface.
3. Visual Design - The visual design is key to the development of the user interface. Users can be opinionated on the GUI and it is important for the visual aspect to be simple and well defined for the user.

B. Humans perceive colour through the eyes. The eyes are a visual organ which are crucial for human reaction to stimuli around them. The eye is made up of the cornea, lens, retina, iris and the optic nerve. Light passes through the cornea and is focused by the lens. This produces an inverted image on the retina. The iris controls the amount of light entering through the cornea. The retina contains photoreceptors which coordinate the amount of light and with connection to the optic nerve, send the message to the brain. The brain then forms an image.

There are three components to how humans perceive colour. Hue is determined by the spectral wavelength of the light. This is based upon the colour. Intensity is the brightness of the colour. Saturation is the amount of whiteness in the colour. From these components, we can perceive 7 million colours. Colour is relevant to User interfaces because colours ccan have an effect upon the user. Some colours like red are assumed with grabbing attention of user to some object. Black is generally used for text. Contrast between colours is important to for creating an object that is easy to read.

C. The wizard Of Oz approach is a concept in UI where users assume that an interface they are using is being controlled by a machine. Instead in the background there is a human controlling the interface. The benefit of using this approach is that the controller can guide a user through the system in order to test the usability. However, this is essentially white box testing which is inefficient because it will not cover the quality of the entire UI.

D.

1. Error Handling - Create the UI so that it handles the errors from the system end so that users do not have to diagnose problems.

2. Internal Locus Of Control - Enable the user to feel in control of the interface while having the underlying system manage the execution.

3. Permit Reversal of Actions - In the case that a user wishes to reverse their actions on the interface, provide a mechanism where they can traverse backwards while still being usable.

4. Strive for consistency - Utilise familiarity on the user interface. This can de done by having identical terminology in prompts and help screens.

5. Offer Informative Feedback - When a user completes some action, provide an acknowledgement of conduct for the user so that they can progress through the interface while feeling accomplished.

E

Sensory Buffers

Receive through peripheral senses

3 Types - Iconic - Visual, echoic - Aural, haptic - tactile

Continuously Overwritten

Short Term memory

Temporary Recall

Rapid Access ~70ms and Rapid Decay ~200ms

Limited Capacity for storage

Long Term Memory

Repository with Slow access, slow decay and huge capacity

Episodic - Serial memory of an event, Semantic - Structured memory of facts

Rehearsed Memory - means that memory can be transformed from short term to long term

Q2

1. The interfaces that would be designed for aforementioned products like ATMs, kiosks and other devices are specifically designed to carry out one task. A stand-alone desktop computer or laptop has a set of goals in mind when being designed for their user interfaces. The desktop may have multiple applications whose tasks each need to be fulfiilled. While both user interfaces must achieve full usability and contain a universal design, they still differ in their roles. Kiosks and ATMS are restricted for users. This is where users cannot see the underlying operations taking place. Modification is not possible and once a goal has been achieved the platform must be reset. Desktops, on the other hand must store information and be consistent for their users.

Q3.

Completion measures - AKA the fundamental usability metric, recordded as a binary result 1 for success and zero for failure. If users cannot accomplish their goals, then the state must be reworked.

Usability Problems - Problems encountered with or withour a rating of severity. The problem is described and noted for the users who encountered it. Knowing the probability a user will encounter a problem at each phase of development can become a key metric for measuring usability impact.

Task Level Satisfaction - After users attempt a task, have the users surveyed on how comprehensive the task was and if it was in any way difficult.

B.