Assignment 02

700299

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Question 1

1.1)

Mathematicians

Logicians

Astronomers

1.2)

Difference Engine, designed to calculate a specific function (6^{th} degree polynomials)

Analytical Engine, was a more general computer

1.3)

FORTRAN, based on algebra, grammar and syntax rules.

1.4)

In 1982 Xerox introduced their STAR user interface, this marked what many people believe to be the beginning of HCI as a conscious design activity by software companies

1.5)

WWW originated at the National Centre for Supercomputer Applications (NSCA) at the University of Illinois and at CERN in 1991.

Question 2

2.1)

A social network is a social structure that connects individuals or organisations.

2.2)

Is any device that is created using mobile components such as mobile hardware and software.

2.3)

A multimedia interface implies the use of a combination of different media within a single interface namely graphic, text, video, sound and animation.

2.4)

The extent to which a product can be used by specific users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use.

Question 3

The changing notion of the interface.

Increased dependency on technology.

Hyper connectivity.

Changes in the means and reasons for recording information.

Increased creativity through technology.

Question 4

Identifying needs and establishing user requirements.

Developing alternative designs according to the requirements.

Building prototypes of the designs so that they can be assessed.

Evaluating the designs and the user experience.

Question 5

Icons and other graphical representations should enable users to readily distinguish their meaning.

Boarders and spacing are effective visual ways of grouping information and make it easier to perceive and locate items.

If sound is used, it should be audible and distinguishable so that users understand what they represent.

Text should be legible and distinguishable from the background.

When tactile feedback is used in a virtual environment, it should allow users to recognize the meaning of the touch sensations being emulated, for example, the sensation of squeezing is represented in a tactile form that is different from the sensation of pushing.

Question 6

Short-term memory and information processing

Long-term memory and learning

Problem-solving

Decision making

Question 7

7.1)

Table 7.2

7.2)

In table 7.2, information is bunched together, making it harder to go through.

Question 8

Compliance with regulatory and legal requirements.

Exposure to more people.

Better design and implementation.

Cost savings.

Question 9

1 – Visually Impairment

Limitations for normal input, Users with partial sight/no sight have a difficulty perceiving and using input devices such as mouse, keyboard, screen and various other physical hardware.

Limitations for normal output, output displays also pose an issue as visual output devices are hard to perceive by Users with visual impairments, example: Hard to perceive information on the screen.

What works best -> Text-to-speech conversion, speech recognition. Enlarging portions of a display, converting devices into Braille. Keyboards with large lettering, high contrast between text and background, to name a few.

2 – Motor Impairment

Limitations for normal input, Users with motor impairment may have difficulties grasping and moving a standard mouse and other physical hardware, such as keyboards. These devices also require fine motor coordination. Users may also be confined to a bed (even less physical ability).

Limitations for normal output, output displays also pose an issue as output devices require precision and fine motor coordination in order to perceive information.

What works best -> Text-to-speech conversion, speech recognition. Let the mouse vibrate if the cursor is over the

target or implement “gravity fields” around icons/objects. Provide track-balls and head-operated and eye-tracking devices. Keyboards need to be detachable, sufficient space between keys and the keys must require less force to press, to name a few.

Question 10

Allows for learning at a young age/

Introduction to the Technology sphere at a young age.

Creativity and freedom of expression.

Support STEM learning.

Improves motor skills.

Exposure to the outside world via the INTERNET.

Improve social skills via social media and other means of communication.