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National University of Computer and Emerging Sciences, Lahore Campus

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Student : Name: Ahmad Aijaz Roll No. 17L-4111 Section: 6C

Instruction/Notes: Solve on question paper, answer sheets are not required.

Question1. What input and output devices would you use for the following systems? For each, compare and contrast alternatives, and if appropriate indicate why the conventional keyboard, mouse and CRT screen may be less suitable. **(3 x 4 Points)**

(a) Portable word processor for blind and normal users.

Input Device1:
→ A stylus or pen.
→ A key board to ~~right~~ write.

Input Device2:
→ A ~~speak~~ microphone that will use the blind person voice to write words.

Output Device1:
→ For blind user, speech system the device should speak to let the blind user know about details.
→ For normal user, a good graphical interface that will let the user know about information.

Output Device2:
→ A sound system for the blind user that will make a sound for every action.

1.5

Comparison and contrast:
→ Since this is made for both blind and normal user, so both the input and output devices are necessary.

(b) Tourist information system

Input Device1: Keyboard, to let the user type about the destination. Qwerty keyboards are used most so it is most suitable input device.

Input Device2: → because this is better and its respon
→ A mouse (optical).
This will let the user choose ~~the which~~ the destination.
Best device for interaction.

Output Device1: An LCD screen that will show the details abo the system. A CRT screen puts strain on eye and it do not show good GUI like LCD screen.

Output Device2: CRT screen to show the details

Comparison and contrast
A keyboard is used for typing
Both the input devices
screen is better than normal CRT

(c) Air traffic control system

Input Device1: A microphone or head phone, by which one person can send his voice message to the other person.

Input Device2:
A keyboard (Qwerty) which will let one user to send a message, that will receive by other user.

Output Device1:
A speaker that will produce sound caused by the input device 1. (microphone)

Output Device2:
An LCD, or a screen (situated screens) that will show the information about the air traffic system.

~~Comparison and contrast~~
→ if a user want to speak he will use microphone and if he wants to right he will use the keyboard, For both these input devices both speakers and LCD

(d) Worldwide personal communications system

Input Device1: → A keypad on a mobile
→ A keyboard for the PC.

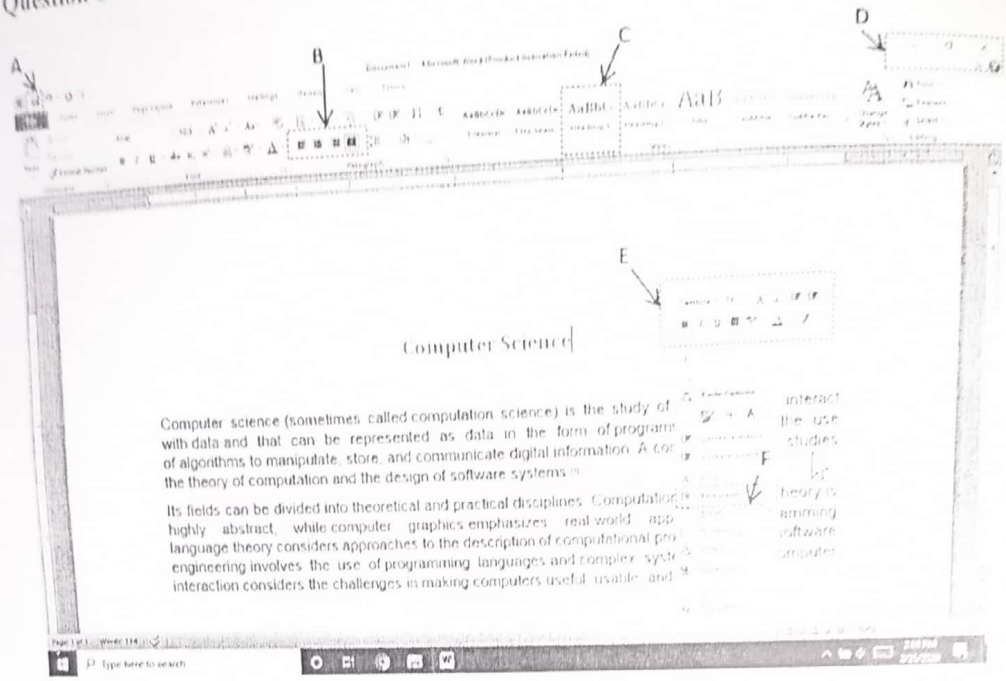
Input Device2: A microphone to talk.

Output Device1: → A screen of a mobile
→ LCD screen to recieve messages.

Output Device2:
A headphone to hear the calls, or voice messages.

comparison and contrast :-
→ Since communication can be done by calling or texting, keypad, keyboard and microphone are necessary. For visual information keyboard is better. For voice microphone and headphone are better.
mobile screens and LCD both are necessary output devices.

Question 2: Consider the following interface and labels.



According to Fitt's Law which regions of the screen (Labeled as A, B ... F) rank each object based on accuracy to target with reference to cursor position. (Rank 1 as easiest or most accurate) (12 Points)

Rank	Label	Reason
1	D	Because it is on the top right corner and it is easy to achieve. The objects on the corner and edges are easy to click on the
2	A	Because it is on the top left corner so it is easy to achieve since it has small size so I have ranked it 2nd
3	E	This bar is closer and bigger in size so I have ranked it 3rd.
4	F	Although it has small size but the distance is least so it can be ranked 4th
5	C	I have ranked it 5th because it is bigger in size than B.
6	B	I have ranked it 6th because the distance is large and size is smaller.

→ According to fitts law if the size of object is large and distance is small it is easiest to achieve.

Question3: What can a system designer do to minimize the memory load of the user? Give at least two options. **(4 Points)**

2+~~0~~1

→ He should give names to most of the objects in a program
→ He should assign a related shape to that function like .
paint
→ The ~~tools~~ functions that are used most should be larger in size.

Question4: A typical computer system comprises a QWERTY keyboard, a mouse and a color screen. There is usually some form of loudspeaker as well. You should know how the keyboard, mouse and screen work. If you were designing a keyboard for a modern computer, and you wanted to produce a faster, easier-to-use layout, what information would you need to know and how would that influence the design? (2 Points)

→ The information that I would use is that which format and texture of the keyboard contents the user most
→ The buttons of the keyboard should ~~rightly~~ give a response at every click (No missing)
→ Accidental touch would be avoided.
→ The buttons should require less force to be pressed.