

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMUNICATION AND INFORMATION SCIENCE

DEPARTMENT OF JOURNALISM AND MEDIA STUDIES

INTRODUCTION TO INFORMATION TECHNOLOGY (IJM 1105)

DECEMBER 2004 EXAMINATION

TIME ALLOWED: 3 HOURS

INSTRUCTIONS TO CANDIDATES

- i) Answer **four** questions only, Section A is **compulsory**.
- ii) Answer **any three** questions from section B
- iii) Poor spelling and grammar will be penalised.
- iv) Start each answer on a new page.

SECTION A: COMPULSORY

Question 1

Read the case “ENABLING THE DISABLED” and answer the following questions.

**ENABLING THE DISABLED**

How can someone who is completely paralysed hold a job in a major corporation – and be productive? Mike Ward is an editor at Intel Corp., the giant maker of computer chips. He edits articles written by engineers about failure analyses of components used in various high-technology projects for *Failure Analysis Summit*, an Intel newsletter. Ward was diagnosed with Lou Gehrig’s disease, or amyotrophic lateral sclerosis, which progressively destroys the motor neurons that control all a person’s muscles. He has been confined to a wheelchair and can move only his eyeballs. He requires a ventilator to breathe and must be fed artificially. But his mind is fully productive. The key technologies that allow him to work are input and output devices that enable him to communicate with the computer, which, in turn, communicates with others for him.

Ward uses the Eyegaze computer system, which reads eye movement with great precision. The system uses a low-power infrared system mounted below the computer monitor. The system illuminates the eye lens and takes a picture 30 times per second. It can detect where the person is looking to within ¼ inch, allowing the user to activate keys as small as 5/8 inch wide. A key is “pressed” by the user looking at the key for ¼ second or longer. The screen Ward uses contains a keyboard and other symbols as well to allow him to accomplish other tasks-typing, turning on lights or television, even “speaking” on the telephone. Ward claims the system works so well and so fast that he can now write using full sentence and punctuation without a loss of time. To do his writing and editing, he uses an ordinary PC running standard software.

To “talk”, Ward uses a special text-to-speech output system called MultiVoice from the institute of Applied Technology of the Children’s Hospital in Boston. The system runs on a laptop PC that is mounted to his wheelchair. Ward’s MultiVoice speaks with a deep voice, although the quality and intonation of the voice can be adjusted.

Computer technology is helping other physically challenged people as well. Daniel Lawrence's vocal cords had been removed because they were cancerous, but he found work as a voiceless disk jockey at KHUM-FM, a free-form rock-n-roll station in Ferndale, California. Using a speech synthesizer called DECTalk from the Digital Equipment Corporation; he types comments which are then "spoken" by the computer. The computerised speech is fed directly into the station's control board, bypassing the microphone to improve fidelity. "Digital Dan" has increased KHUM's popularity in a crowded market, and the job has given Dan Lawrence a new purpose in life.

Don Dalton, who is paralysed from the chest down and confine to a wheelchair, started Micro Overflow Corp. in his garage. He relied heavily on a PC, initially operating the keyboard with a stick held in his mouth. Now he uses a microphone in a headset connected to the PC and can activate all the computer's functions by voice, type 100 words per minute, and manage the company's finances and scheduling. Micro Overflow is a distributorship that adapts computer technology for the disabled. Dalton is helping other disabled entrepreneurs to profit from computer technology, just as he did.

- 1a) Identify and discuss various components of the computer system used by Mike Ward at Intel Corp in "ENABLING THE DISABLED." [15 marks]
- 1b) Discuss the advantages and disadvantages Dalton has over an ordinary computer system in "ENABLING THE DISABLED" [15 marks]
- 1c) Discuss other computer systems that can be developed to aid people with various disabilities, such as blindness, deafness or inability to walk. [10 marks]

**TOTAL: [40 marks]**

## **SECTION B: ANSWER ANY THREE QUESTIONS**

### **Question 2**

Discuss the social and technological impact of information and communication technologies (ICTS) on the journalism today. [20 marks]

### **Question 3**

What is the Internet? What has been its impact on journalism and media practice in the developing countries, especially in Zimbabwe? [20 marks]

### **Question 4**

Identify security threats to ICTS used in the newsroom. Discuss the security measures one could adopt in addressing such threats. [20 marks]

### **Question 5**

Describe the features and functions of database systems in journalism. [20 marks]

**Question 6**

a) What is the purpose of each of the following computer components?

- i) CPU [ 3 marks]
- ii) RAM [ 3 marks]
- iii) ROM-BIOS [ 3 marks]

b) Explain, giving two examples of each, what you understand by input and output devices.

[11 marks]

**TOTAL: [20 marks]**