

Grade 12 Sub Tutorial

Question 1

- (a) State the purpose of the following devices in a computer system.
- (i) An input device
 - (ii) An output device
 - (iii) A storage device
- [3]
- (b) A student has a computer at home as well as using computers at school. State **two** different storage devices that the student would use on her computer and explain what she would use each for. [4]

Question 2

A supermarket uses barcodes on all its products. When products pass through the point-of-sale (POS), various data are captured. Name **three** suitable input devices at the POS. [3]

Question 3

- (a) Describe **two** differences between RAM and ROM. [2]
- (b) State an example of what would be stored in ROM and justify your answer. [2]
- (c) State an example of what would be stored in RAM and justify your answer. [2]
- (d) A remote-controlled toy car contains both RAM and ROM. The car can be programmed to carry out a number of manoeuvres. How are the two types of memory used in the car? [2]
- (e) State **three** differences between Static RAM (SRAM) and Dynamic RAM (DRAM). [3]

Question 4

An airport uses electronic devices as part of its security systems. One system matches the face of a passenger with the photograph in their passport. What **two** input devices would be needed to do this? Give reasons for your choice of device. [4]

Question 5

A cinema allows its customers to buy tickets from an automatic dispensing machine. Payment can be made either with cash, or by debit or credit card. State **two** input and **two** output devices that would be needed and give reasons for your choice of device. [8]

Question 6

A wind turbine has a safety system which uses three inputs to a logic circuit. A certain combination of conditions results in an output, X, from the logic circuit being equal to 1. When the value of $X = 1$ then the wind turbine is shut down.

The following table shows which parameters are being monitored and form the three inputs to the logic circuit.

Parameter description	Parameter	Binary value	Description of condition
turbine speed	S	0	≤ 1000 rpm
		1	> 1000 rpm
bearing temperature	T	0	$\leq 80^{\circ}\text{C}$
		1	$> 80^{\circ}\text{C}$
wind velocity	W	0	≤ 120 kph
		1	> 120 kph

The output, X, will have a value of 1 if any of the following combination of conditions occur:

- **either** turbine speed ≤ 1000 rpm and bearing temperature $> 80^{\circ}\text{C}$
- **or** turbine speed > 1000 rpm and wind velocity > 120 kph
- **or** bearing temperature $\leq 80^{\circ}\text{C}$ and wind velocity > 120 kph.

Draw a logic circuit to produce a value of $X=1$ when any of the three conditions above occur. [7]

Question 7

Four types of storage, labelled A, B, C, D are shown in the table below.

(a) Four types of memory, media or devices are shown in the first column. Copy the table and put a tick (✓) in the appropriate column A, B, C or D to indicate the type of storage to which it belongs. You should only put one tick(✓) in each column.

	A	B	C	D
	primary memory storage	magnetic secondary storage	optical secondary storage	solid state secondary storage
DVD-RAM				
ROM				
hard disk				
flash memory				

[4]

(b) For the following applications, state which of the four types of storage A, B, C or D is the most appropriate.

Use each type of storage once only. Indicate your answer by selecting A, B, C or D.

(i) to store the BIOS

A B C D [1]

(ii) to store the operating system and applications software

A B C D [1]

(iii) to allow simultaneous recording and playback by a video recorder with removable media

A B C D [1]

(c) State **one** benefit and **one** drawback of using flash memory. [2]

Computer Dept. Modern College