MATRICULATION AND SECONDARY EDUCATION CERTIFICATE EXAMINATIONS BOARD
UNIVERSITY OF MALTA, MSIDA

SECONDARY EDUCATION CERTIFICATE LEVEL

MAY 2016

SUBJECT:	**Information Technology**
PAPER NUMBER:	Controlled – Unit 1
DATE:	2nd June 2016
TIME:	10:00 a.m. to 11:35 a.m.

THIS PAPER SHOULD BE RETURNED TO THE INVIGILATOR AFTER THE EXAMINATION.

Name of candidate _____

I.D. number _____

School _____

Class _____

Notes to Students:

- Answer all questions in the space provided

Scenario

A good friend of yours knows that you are following the vocational Information Technology studies and has approached you in order to help her/him understand how computers work so that s/he can purchase the best computer for her/his requirements.

Question 1   **K1 (4 marks)**

Your friend would like to know the main difference between different classes of computer systems. Fill in the tables below to provide your friend with a better understanding.

a. With 1 being the highest and 8 being the lowest, fill in the table below according to the system's average cost.

	Cost
Desktop	
Gaming rig	
Supercomputer	
Laptop	
Embedded device	
Tablet	
Cluster	
E-book reader	

b. With 1 being the fastest and 9 being the slowest, fill in the table below according to the system's average speed.

	Speed
Desktop	
Supercomputer	
Laptop	
Embedded device	
Tablet	
Wearable	
E-book reader	
Cluster	
Smartphone	

c. With 1 being the biggest and 8 being the smallest, fill in the table below according to the system's average size.

	Size
Desktop	
Supercomputer	
Laptop	
Embedded device	
Tablet	
Wearable	
Cluster	
Smartphone	

Question 2   **K3 (4 marks)**

Now that s/he understands the different types of computer systems, your friend wants to understand better how computers work. Specifically, s/he wants to know how data flows between the different subsystems of a typical computer. Help your friend gain a better understanding by filling in the diagram below. In both cases, some answers have been filled in as an example.

a. Fill in the empty blocks in the diagram with the appropriate words that describe each block.
b. Draw arrows between the blocks to show how the data flows between the various blocks.
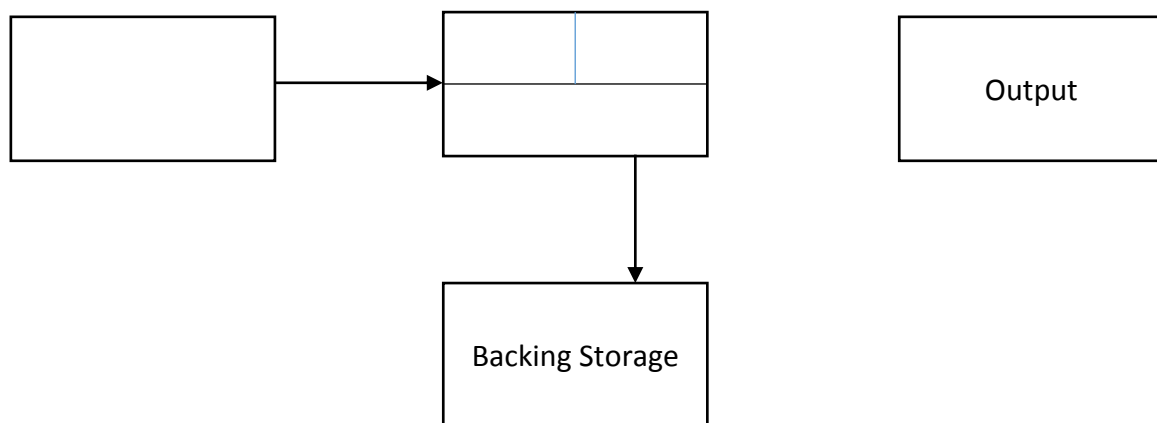
Please turn the page.

Question 3   **K5 (4 marks)**

Now that your friend understands the differences between computer systems and how a computer operates on a basic level, s/he decided that s/he requires a desktop computer. S/He is now more interested in the peripheral devices that s/he needs to purchase for this computer.

a. What basic input device is required for your friend's computer so that s/he can type text?

b. What basic output device is required so that s/he can see images and text that the computer is displaying?

c. Your friend will use the computer to carry out her/his homework. What device does s/he require so that s/he can present hard-copies of his/his homework at school?

d. Which magnetic peripheral device does your friend need in order to be able to store her/his files on the computer?

e. Which peripheral device is required so that your friend can also store her/his homework on a portable device, so that s/he can show the homework to his teacher during the IT class?

f. Which peripheral device does s/he need in order convert images of typed, handwritten or printed text into machine editable text?

g. Your friend's cousin has limited physical mobility. Mention **two** peripheral devices that can help her/his interact with the computer.

Question 4   **K6 (4 marks)**

Your friend would like his computer to be connected to the Internet.

a. Your friend does not understand the difference between a modem, switch and a router. They all look the same to him. Please outline to your friend the main differences between a modem, switch and a router.

_____

_____

_____

_____

_____

_____

_____

_____

_____

b. Mention **four** data transmission media that can be used in networking.

Data Transmission media 1: _____

Data Transmission media 2: _____

Data Transmission media 3: _____

Data Transmission media 4: _____

Please turn the page.

c. Outline the main difference between a service provided via a client-server model and a service provided via a peer-to-peer model.

d. Outline the importance of protocols in computer networks.

Question 5   **K9 (4 marks)**

Once connected to the Internet, security becomes an important issue. Firewalls have an important role to serve in this regard. Outline to your friend **four** different roles that a firewall can serve.

Role 1: _____

Role 2: _____

Role 3: _____

Role 4: _____

Question 6   **C5 (2 marks)**

Explain to your friend why is online security such an important matter. Mention and briefly explain **four** network security threats to your friend:

Threat 1: _____

_____

_____

_____

_____

Threat 2: _____

_____

_____

_____

_____

Threat 3: _____

_____

_____

_____

_____

Threat 4: _____

_____

_____

_____

_____

Question 7   **C5 (4 marks)**

Explain to your friend how the following security technologies can help her/him to be more secure when s/he is online:

a. Sand-boxing

_____

_____

_____

_____

b. Disk freezing

_____

_____

_____

_____

c. Anti-malware

d. Adware filtering

e. Security updates

Please turn the page.

Question 8   **C4 (2 marks)**

You have just formatted and installed Microsoft Windows on your friend's computer. Your friend asked you to create **two** different accounts in order to allow her/him to carry out the following tasks. For each task you are to specify which standard user group is to be used.

a. An account that enables the overall management of the computer, including the installation and removal of any software.

   Standard user group: _____

b. An account for her/his sister so that she can make basic personalisation to her account but not have the rights to change most computer settings and deleting important files.

   Standard user group: _____

Question 9   **C4 (4 marks)**

Your friend needs to share some files with her/his sister's account on the same computer. Briefly outline the basic permissions within Windows sharing to your friend by completing the table below. Some entries have been filled-in as an example.

Permission	Meaning for Folders	Meaning for Files
Read	Permits viewing and listing of files and subfolders.	
Modify		
	Permits reading, writing, changing, and deleting of files and subfolders.	Permits reading, writing, changing and deleting of the file.

Question 10   **C1 (6 marks)**

Based on your explanations your friend has listed the following shortlist of computer systems. S/He needs your help on which system s/he should purchase according to his needs.

Your friend has a budget of €900 and would like a computer able to run the latest versions of Microsoft Windows and Microsoft Office. Your friend also likes photography and photo manipulation therefore s/he must have enough storage space to store a collection of high quality photos as well as videos. Note the computer needs to be powerful enough to edit the photos and videos.

	System 1	**System 2**	**System 3**	**System 4**
Type	Desktop	Desktop	Laptop	Laptop
Processor	Intel Core i3, Dual Core, 3.6Ghz	Intel Core i5, Quad Core, 3.2Ghz	Intel Core i5, Dual Core, 2.2Ghz	Intel Celeron, Dual Core, 2.16Ghz
RAM	8Gb	8Gb	8Gb	2GB
Secondary Storage	2TB HDD	1TB SSD	1TB HDD	320Gb
Video Card	Intel Integrated	Nvidia Standalone	Nvidia Mobile	Intel Integrated
Cooling System	2x 80mm fans	2x 80mm fans	1x 40mm fan	1x 40mm
PSU/ Battery	500w PSU	600w PSU	6 hours	10 hours
Price	€611.00	€719.00	€800.00	€700.00

a. Which system would you recommend?

Please turn the page.

b. Give **five** valid reasons for your choice stated in part (a).