

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

SECONDARY EDUCATION CERTIFICATE LEVEL

SEPTEMBER 2016

SUBJECT:	Information Technology
PAPER NUMBER:	Synoptic – Unit 1
DATE:	1 st November 2016
TIME:	10:00 a.m. to 12:05 p.m.

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

Notes to Students:

- Answer all questions in the space provided

Scenario

Your local council is organizing a number of sessions for those residents who would like to learn more about computers. They have contacted you in order to answer any questions that they might have.

Question 1**K1 (7 marks)**

The following is a range of computer systems currently used:

desktop computer, supercomputer, tablet, cluster, laptop, smartphone

- a. If portability is the most important criteria, which system from the above list is the most adequate?

- b. Which system from the above list would be the most expensive to purchase?

- c. If performance is the most important criteria, which system from the above list is the most adequate?

- d. Which device has the smallest physical size between a cluster and a desktop computer?

- e. List **three** differences between a laptop and a supercomputer.

Question 2**K2 (5 marks)**

Describe **one** use for the following computer systems.

a. Wearable computers

b. Embedded devices

c. Laptops

d. Supercomputers

e. Tablet

Question 3**C1 (5 marks)**

An interior designer, working within the local council, needs a laptop to carry out his work and has a budget of €1000. He will use the laptop not only for design but also for gaming and office use. According to the list below, indicate and explain which laptop best fits the requirements of the interior designer.

Name	Laptop A	Laptop B	Laptop C	Laptop D
Type	Laptop	Laptop	Laptop	Laptop
Cost	€699	€799	€999	€699
Screen Size	15.6"	15.6"	17"	13"
Storage	500Gb HDD	1Tb HDD	1Tb HDD	256Gb SSD
RAM	16Gb	8Gb	16Gb	8Gb
Operating System	Windows 8.1	Windows 8.1	Windows 8.1	Windows 8.1
I/O Ports	2x USB 3.0	3x USB 3.0	4x USB 3.0	2x USB 3.0
Graphics	Intel Iris Pro 6200	Intel HD 5600	Nvidia GeForce GTX 980M	Intel Iris 6100

a. Which laptop would you recommend?

b. Explain **four** reasons with regards to your recommendation.

Reason 1: _____

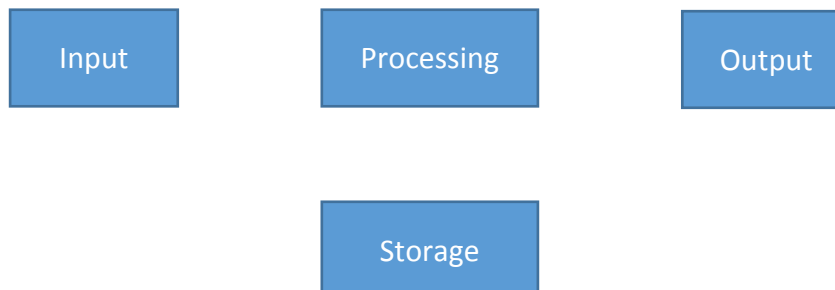
Reason 2: _____

Reason 3: _____

Reason 4: _____

Question 4**K3 (4 marks)**

The following diagram shows the organisation of a PC system. Complete the diagram by adding arrows between the boxes that signify the data flow.

**Question 5****K4 (2 marks)**

Your local council needs to upgrade their computer to Windows 7. They have asked you which of the following are the minimum requirements for Windows 7. Circle A, B or C.

a.

CPU Speed	800Mhz (32bit or 64bit)
RAM	512Mb
Storage	20GB
Video Card	Direct-X 9 class

b.

CPU Speed	233Mhz
RAM	64Mb
Storage	1.5GB
Video Card	Supports a resolution of 800x600

c.

CPU Speed	1Ghz (32bit or 64bit)
RAM	1GB
Storage	16GB (32-bit) or 20GB (64-bit)
Video Card	Direct-X 9 class with WDDM 1.0

Question 6**K5 (5 marks)**

Select the most appropriate peripheral device from list below, according to the situations described.

keyboard, optical character reader, 3D scanner, printer, monitor, plotter; hard disk, optical disk drive, flash drive, braille keyboard, eye tracking system, puff-suck switch.

- a. Paul needs to convert a number of handwritten and printed text into machine editable text.

Peripheral device: _____

- b. Mary needs to print 3D models of real-world objects. Which device does she need to collect data on the shape and appearance of the 3D models?

Peripheral device: _____

- c. George is starting a career as an architect and needs a printer to print vector graphics.

Peripheral device: _____

- d. Daniela needs a device to read optical media.

Peripheral device: _____

- e. Joseph suffers from limited physical mobility. Which device, making use of a tube, can Joseph utilize as an input into his computer?

Peripheral device: _____

Question 7**C2 (7 marks)**

Discuss how the following main components of a computer system can affect the system's performance.

- a. CPU

b. RAM

c. Solid state drive

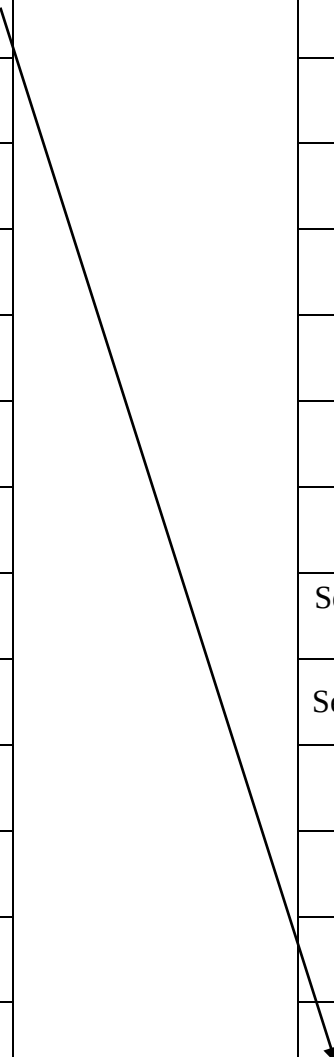
d. Graphics card

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Question 8**A1 (15 marks)**

The following steps represent a guide on how to install Windows 7 using a disc. Your task is to match the steps in the correct order to the respective operation. The first step has been completed as an example.

Steps	Operations
Step 1	Save the changes made to the BIOS and exit
Step 2	Start the computer from the Windows 7 disc
Step 3	Restart the computer
Step 4	Choose the Windows Setup Options
Step 5	Click on Custom (advanced) for a custom installation
Step 6	Provide username
Step 7	Enter the computer's BIOS
Step 8	Select the drive (or partition) on which Windows 7 is to be installed
Step 9	Select the CD-ROM drive as the first boot device
Step 10	Provide computer name
Step 11	Accept the license terms
Step 12	Install drivers and updates
Step 13	Turn on the PC
Step 14	Provide activation key and network location type
Step 15	Find the BIOS boot options menu
Step 16	Click the Install Now button



Question 9**K6 (5 marks)**

Outline the following networking terminology to the local council representatives:

a. Peer-to-peer: _____

b. Ethernet Cable: _____

c. Bandwidth: _____

d. Router: _____

e. Switch: _____

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Question 10**C3 (9 marks)**

Your local council have just moved into their new offices. They have contacted you in order to assist them in setting up the network. They would like to connect 3 desktop computers throughout the office area, the tablets used by the clerks and also to provide free Wi-Fi to the local residents. Being a historical building, they have been prohibited from passing any new cables throughout the office building. The offices are spread over three levels, including a verandah and an outside section.

Answer the following questions, based on the above scenario:

a. Would the above network be classified as a WAN or a LAN?

b. Would you recommend a wired, wireless or a mixed mode network? Give **one** reason for your answer.

c. Explain what security measures would you recommend that they make use of.

d. Would you recommend the use of repeaters or multiple access points for this scenario? Substantiate your recommendation with valid reasons.

e. Explain what possible disadvantage can the local council encounter based on your recommendations.

Question 11**K7 (5 marks)**

Describe the following common local user groups:

a. Administrator account

b. Limited user account

c. Guest account

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Question 12**C4 (5 marks)**

The following is a list of standard user groups and different sharing permission types. In each of the scenarios below, distinguish which user group or sharing permission is being used.

*administrator account, limited user account, guest account, read permission,
read/write permission, modify permission, full control*

- a. Maria, the council secretary, is using a permission which only allows her to view and list files and subfolders.

- b. Tony, the mayor is using a permission which allows him to read and write to files and subfolders; and also allows him to delete folders.

- c. Julia, the councillor, is using a permission which allows her to read, write, change and delete files and folders.

- d. Julia's computer account allows her to make changes to system settings and to manage other people's accounts. She has full access to every setting on the computer.

- e. Tony's computer account is a basic account used for normal everyday tasks. He can run software and personalise his desktop but he cannot change system settings.

Question 13**A2 (14 marks)**

List the steps required to add a new Standard User account in Windows 7.

Steps	Operations
Step 1	Click on Add/Remove user accounts
Step 2	Click the Start button
Step 3	Click Create Account
Step 4	Click on Control Panel
Step 5	Select standard user
Step 6	Click create a new account
Step 7	Enter new account name
Step 8	Close the window



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Question 14**K9 (5 marks)**

Outline the role of the firewall in safeguarding computer networks by briefly describing **five** main features of firewalls.

Question 15**C5 (7 marks)**

a. Explain the following network security threats.

i. Malware

ii. Hacking

iii. Denial of service attack

iv. Botnet

b. Explain the following network protection systems.

i. Anti-malware

ii. Adware Filtering

iii. Sandboxing

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