Uganda Martyrs University
Faculty of Science

University Examinations 2012 / 2013

PC Maintenance & Systems Administration

Date: **Dec. 17th, 2012** Time: **2:00pm – 5:00pm** Duration: **3 Hours**

Instructions:

- Answer only four questions in total
- Section A is **compulsory**. Answer only **Three** Questions from Section B

Section A Compulsory (40 Marks)

Question 1

(a) What is the function of the following components of a microprocessor: control unit and arithmetic/logic unit **[4 marks]**

(b) Write brief explanatory notes on the following **[6 marks]**

i. Address bus
ii. Data bus
iii. Control bus

(c) Name two types of microprocessor interfaces and describe each type **[4 marks]**

(d) Write brief explanatory notes on: random access memory (RAM), read-only memory (ROM) and cache memory. **[6 marks]**

(e) Explain how the following impact on computer performance **[6 marks]**

i. Architecture of the Front Side Bus (FSB)
ii. Memory Bus

(f) Complete the following table. An example is given for you. **[4 marks]**

Partition or device Name	*Refers to:*
/dev/hda1	the first partition on hard drive number one in the PC
/dev/hdb	
/dev/hdc1	
/dev/hdc2	
/dev/hdd3	

g) What is a file system? Give two examples of file systems **[4 marks]**
h) Outline three criteria you would use when evaluating file systems **[6 marks]**

Section B (60 marks). Answer three questions only

Question 2

a) Write brief explanatory notes about the following components of a PC. **[10 marks]**

i. The power supply unit
ii. Graphics system
iii. Central processing unit (CPU)
iv. Motherboard
v. Complementary metal oxide semi-conductor (CMOS)

b)
i. What is form factor in the context of a PC? **[2 marks]**
ii. Why is it important to consider form factor when selecting and upgrading a PC component? **[4 marks]**
iii. Explain two benefits an ATX form factor has over the AT form factor. **[4 marks]**

Question 3

a) Explain two benefits of dual channel memory over single channel memory. **[4 Marks]**

b) Write brief explanatory notes on the following **[12 Marks]**

i. Synchronous dynamic random access memory (SDRAM)
ii. Rambus dynamic random access memory (RDRAM)
iii. Double data rate (DDR) SDRAM
iv. Video random access memory (VRAM)

c) Explain how the size and speed of random access memory (RAM) affects computer system performance **[4 marks]**

Question 4

(a) Explain the following: master, slave, and cable select drive settings. **[6 marks]**

(b) Outline three benefits of the serial ATA drive standard over the parallel ATA drive standard **[6 marks]**

c) Explain the following types of drive partitions: primary partition, extended o partition, logical partition, and swap partition. **[8 marks]**

Question 5

a) Why is it important to protect computer components from electrostatic discharge (ESD)? **[2 marks]**

b) Write brief explanatory notes on the following **[10 marks]**

i. Diagnostic tools such as Partition Magic
ii. Digital multi-meter
iii. ESD Mat
iv. ESD Wrist strap
v. Surge suppressor and uninterruptible power supply (UPS)

c) What is PC troubleshooting? Identify and explain the two types of preventive PC maintenance procedures **[8 marks]**

Question 6

a) Write BIOS in full **[2 marks]**

b) Identify four components that constitute the main BIOS in a PC and explain the role of each component. **[8 marks]**

c) Identify and describe two methods by which power-on-self-test (POST) reports errors that occur during the boot-up process of a computer. **[4 marks]**

d) Explain three circumstances that may require the BIOS in a PC to be updated. **[6 marks]**

Question 7

a) Identify and describe the two components that make up the video subsystem of a PC. **[4 marks]**

b) Write brief explanatory notes on the following **[6 marks]**

i. Resolution
ii. Refresh rate
iii. Color depth

c) Outline three advantages of Liquid Crystal Display (LCD) monitors over Cathode Ray Tube (CRT) monitors. **[6 marks]**

d) Explain three factors you would consider when selecting a monitor for a PC **[6 marks]**

The End!