



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## University Examinations 2020/2021

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR BACHELOR OF EDUCATION ARTS (MATHS/COMPUTER), BACHELOR OF EDUCATION ARTS (GEOGRAPHY/COMPUTER), BACHELOR OF SCIENCE IN COMPUTER SCIENCE , BACHELOR OF SCIENCE IN COMPUTER SECURITY AND FORENSICS, BACHELOR OF SCIENCE IN COMPUTER TECHNOLOGY AND BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

### CIT 3255/CIT 3258: PC MAINTENANCE AND NETWORKING LAB

DATE: JULY 2021

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other Two questions.

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#### QUESTION ONE (30 MARKS)

- a) Explain the following terms as used in networking.
- |                                   |          |
|-----------------------------------|----------|
| (i) IP Address                    | (1 mark) |
| (ii) Subnet                       | (1 mark) |
| (iii) Subnet mask                 | (1 mark) |
| (iv) Network Interface Card (NIC) | (1 mark) |
- b) Describe the functions of the following computer maintenance tools and equipment:
- |                        |           |
|------------------------|-----------|
| (i) Tweezer            | (2 marks) |
| (ii) Sash Brush        | (2 marks) |
| (iii) Magnifying Glass | (2 marks) |
- c) When purchasing a computer, specifications for processor, hard disk, memory and monitor are often quoted.

**Required:**

Identify the unit for measuring each of the following:

- (i) Processor speed (1 mark)
- (ii) Monitor resolution (1 mark)
- (iii) Hard disk speed (1 mark)
- (iv) Memory size (1 mark)
- d) Highlight four indicators of CMOS battery failure in a computer (4 marks)
- e) Suggest six hardware considerations to be made before installing an operating system (6 marks)
- f) Explain the term Master Boot Record (MBR) as used in computers. (2 marks)
- g) Mark Ekiro was troubleshooting a computer that had a hard disk failure. Outline four possible causes of this problem. (4 marks)

**QUESTION TWO (20 MARKS)**

- a) Explain the following alternating current (AC) power fluctuations that could cause data loss or hardware failure:
  - (i) Brownout. (2 marks)
  - (ii) Spike (2 marks)
  - (iii) Power Surge (2 marks)
- b) Analyse five factors to consider when deciding whether to repair or to replace a component (5 marks)
- c) Evans Loktari an information technology (IT) technician knows that CPU speed is determined by its clock speed.

**Required:**

- (i) Explain to Evans, five factors that make the CPU faster other than clock speed. (5 marks)
- (ii) Differentiate between “front side bus (FSB)” and “back side bus (BSB)” (4 marks)

### QUESTION THREE (20 MARKS)

- a) A newly established computer firm would like to acquire new equipment to be used in a polling project. The computer equipment needed for the project is expensive and its useful life lasts only for the project duration.

**Required:**

- (i) Suggest the best procurement method that the firm should use. Justify your answer (2 marks)
- (ii) Outline two disadvantages of the method identified in (a) (i) above (2 marks)
- (iii) Give three reasons why it is necessary to use standard furniture in a computer laboratory (3 marks)
- (iv) Highlight three risks which could result from improper cabling in a computer laboratory (3 marks)
- b) Harrison Kamau tried opening an application program on a computer that was functioning well. The program did not load and the operating system reported that the memory was insufficient.

**Required:**

Suggest possible causes of such a response. (4 marks)

- c) Kiptum Terer's computer is slow in loading programs and he has been advised to upgrade the computer's memory.

**Required:**

Summarise the steps to follow when upgrading the memory module (6 marks)

### QUESTION FOUR (20 MARKS)

- a) Explain how the following improve the performance of the hard disks:
- (i) Disk caching (2 marks)
- (ii) Redundant Arrays of Independent Disks (RAID) (2 marks)
- (iii) File compression (2 marks)
- (iv) Propose four risks associated with installation of pirated software (4 marks)
- (v) Citing an example of open source operating system, explain how open source could be installed in a cybercafé to avoid pirated risks in (b) (i) above (2 marks)
- b) The BIOS setup offers information about the hard drive (s) installed in a computer

**Required:**

Outline the steps to follow to gather information about your computer's hard disk using BIOS setup. (4 marks)

- c) Distinguish between "standby mode" and "hibernate mode" computer power management modes. (4 marks)

**QUESTION FIVE (20 MARKS)**

- a) Explain three instances where the anti-virus software might not protect the computer (3 marks)
- b) Discuss four types of change that create the need for software maintenance (8 marks)
- c) Analyse four benefits of creating partitions within a hard disk drive (4 marks)
- d) Explain the term "E-support" as used in computer support (2 marks)
- e) Summarise three advantages of online customer support. (3 marks)