MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

SECOND YEAR **FIRST** SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE IN COMPUTER SCIENCE

SCS 204: COMPUTER REPAIR AND MAINTENANCE

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question one and any other two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) You need to create a WI-FI connection for your colleagues at work. You have been provided with a new wireless router. Explain two ways in which you can access the administrator's profile and perform the configurations. (4 marks)

b) A computer can tolerate slight power fluctuations, but a significant deviation can cause damages. In view of this statement, explain any two power fluctuation types that are harmful to the computer. (2 marks)

c) When faced with computer hardware problems, you are advised to always follow the six troubleshooting steps. Briefly state and explain them. (6 marks)

d) Convert IP address 110.43.60.3 into its binary format equivalent. (Show your working) (2 marks)

e) Fiber optic cables have been preferred for backbone connections over twisted pair copper cables. State any two reasons for this preference. (4 marks)

f) A student at MUT wants to connect to Alibaba.com for shopping. Unfortunately, he is receiving "destination unreachable" error. The University internet connection to which he is connected to is working fine. What command can he use to establish where the problem is? (2 marks)

g) What two advantages can you give for an organization that has implemented server virtualization technology? (4 marks)

h) TCP is known to be a connection oriented protocol, while UDP is connectionless. What does this statement mean? (2 marks)

i) You have been provided with a 4 LAN port wireless router connected to the internet, a Shielded Twisted Pair (STP) straight through cable, one PC, two laptops and a smart phone. Using a simple sketch, show how you will connect these devices and allocate IP addresses to enable each user to connect to the internet. (4 marks)

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) By use of an example in each case, explain the following TCP/IP attacks: (4 marks)

   i. DNS poisoning

   ii. Distributed DOS

b) Recommend any two steps to take so as to avoid electrostatic discharge from damaging computer internal components. (2 marks)

c) Explain the following terms as used in networking: (2 marks)

i. Power over Ethernet

ii. Ethernet over power

d) You have been given a task of configuring a computer to access internet. Assuming that the network does not have proxy settings, what four settings will you provide on the TCP/IPv4 configuration window? (4 marks)

e) What is a zero-day attack? (2 marks)

f) State any three contents of a windows start menu. (6 marks)

QUESTION THREE (20 MARKS)

a) If a computer overheats, it slows down. Two components are used to cool the CPU. What are they? (2 marks)

b) What is the function of a CMOS battery in a computer? (2 marks)

c) What is the difference between striping and mirroring in RAID technology? (2 marks)

d) By use of a simple sketch, differentiate T568A from T568B twisted pair wire schemes. (4 marks)

e) State and explain any two characteristics of cloud computing. (4 marks)

f) When configuring a wireless router, you can select who connects to it and who does not. What three ways can you use to implement this scenario? (6 marks)

QUESTION FOUR (20 MARKS)

a) A computer has several types of memory used to improve its performance. Identify any two types stating the function of each. (4 marks)

b) State two ways in which software installed on a computer should be maintained. (4 marks)

c) By use of an example in each case, differentiate overlocking from CPU throttling. (4 marks)

d) Security of hardware and software is important in an organization. While breaches against hardware can be seen, software attacks take time and expertise to be revealed. Identify any two attacks against software and state how each can be prevented. (4 marks)

e) By use of an example in each case, state the two types of IP addressing. (4 marks)