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University Examinations 2013/2014

STAGE 4, EXAMINATION FOR DIPLOMA/CERTIFICATE IN INFORMATION
TECHNOLOGY

DIT 0410: NETWORK DESIGN AND SETUP

DATE: APRIL 2014

TIME: 1½ HOURS

INSTRUCTIONS: Answer questions *one* and any other *two* questions

QUESTION ONE - (30 MARKS)

- a) Define the following terms with reference to networks:
- i. ISP (1 mark)
 - ii. Protocol (1 mark)
 - iii. NOS (1 mark)
 - iv. TDM (1 mark)
- b) With an aid of a well labeled diagram explain how the three way hand-shake works. (4 marks)
- c) State and explain impacts of networks to the Kenya society at large. (5 marks)
- d) Antique links limited wish to start an office for their company, as an ICT expert they have approached you to advise them on the best topology to choose for their office. Give and explain three factors to consider when making your choice. (3 marks)
- e) Cabling is essential in interlinking devices in a network for communication, state and explain at least two cable connectors giving cable type used with them. (2 marks)
- f) Differentiate among the following:
- i. Baseband and broadband (2 marks)
 - ii. Jamming signal and back-off timer (2 marks)

- g) Network monitoring is essential for a reliable network operation. Give three network monitoring tools (3 marks)
- h) James smart is an employee at KUTENDA INC. He has complained of not being able to access a shared folder from a colleague's computer, as the network administrator in charge give three probable reason for James challenge. (3 marks)
- i) List any two servers and explain their functions. (2 marks)

QUESTION TWO (15 MARKS)

- a) Ethernet technologies showcase how technology is engineered to provide efficiency in communication on networks. In reference to this give three Ethernet technologies explaining their way of operation. (9 marks)
- b) Explain the following Ethernet standards stating their ranges and operation speeds. (6 marks)
 - i. 10 base 2
 - ii. 10 base f
 - iii. 10 base 5

QUESTION THREE (15 MARKS)

- a) Cable termination is essential for rendering a cable useful in networks. With your knowledge of cable termination, explain how to terminate the following cables using the two major cable termination standards.
 - i. Crossover cable (3 marks)
 - ii. Straight through cable (3 marks)
- b) With an aid of a well diagram explain the coaxial cables features and application area. (4 marks)
- c) Differentiate between the following terms:
 - i. Crosstalk and attenuation (2 marks)
 - ii. Single mode fiber and multimode fiber (2 marks)
- d) Describe the function of a redundant link in any network. (1 mark)

QUESTION FOUR – (15 MARKS)

- a) In a network design, output if a network entails the amount of effort put in developing a network. In this regard state and explain four network design goals of a network. (4 marks)

- b) Describe any three network requirements. (3 marks)
- c) After deploying a network the issue of security is vital. List and explain any four network threats that may affect network reliability. (8 marks)

QUESTION FIVE (15 MARKS)

- a) Network monitoring is essential in ensuring services and applications are available for network users. List any four advantages for monitoring a network. (4 marks)
- b) Sylvester is an employee at WIMWARO holdings. He has complained of challenges accessing the network services. As the network specialist in charge explain the inbuilt network troubleshooting tools you will use to solve Sylvester's problem. (6 marks)
- c) Give the functions of the following network devices
- i. Router (1 mark)
 - ii. Switch (1 mark)
 - iii. Gateway (1 mark)
 - iv. Firewall (1 mark)
 - v. Repeater (1 mark)