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University Examinations 2013/2014

STAGE 3, EXAMINATION FOR DIPLOMA/CERTIFICATE IN INFORMATION
TECHNOLOGY

DIT 0302: NETWORK ESSENTIALS

DATE: APRIL 2014

TIME: 1½ HOURS

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

QUESTION ONE - (30 MARKS)

- a) Define the following terms as used in networks.
 - i. Topology (1 mark)
 - ii. Adapter card (1 mark)
 - iii. NOS (1 mark)
 - iv. Modem (1 mark)
- b) Networks are differentiated with respect to their capability and coverage. State and explain any network types. (6 marks)
- c) Describe the difference between the UTP cable and STP cable. (2 marks)
- d) Define a protocol (1 mark)
 - (i) List and explain protocols used in computer networks. (3 marks)
- e) Define an operating system and explain its major functions. (5 marks)
- f) Define a server and explain any three types of servers. (4 marks)
- g) Differentiate between the seventh layer and First layer of OSI model. (2 marks)
- h) Describe the roles of an NIC adapter. (3 marks)

QUESTION TWO

- a) Explain the major subcategories of topologies. (2 marks)
- b) With an aid of a well labeled diagram explain the hierarchical star topology.(4 marks)
- c) Sedik is a private investor, he wishes to have a physical layout of his new SME (Small Business Enterprise). Explain factors to consider before giving him you recommended layout. (6 marks)
- d) Explain major causes of data corruption during data transfer. (3 marks)

QUESTION THREE– (15 MARKS)

- a) Describe the OSI model and state its governing body. (2 marks)
- b) Explain the advantages of using the OSI model in the communication process. (5 marks)
- c) Give a brief description of the following OSI model layers. (8marks)
 - i. Network layer
 - ii. Presentation layer
 - iii. Transport layer
 - iv. Data link layer

QUESTION FOUR (15 MARKS)

- a) Explain the functions of the following network devices. (5 marks)
 - i. Router
 - ii. Bridge
 - iii. Switch
 - iv. Repeater
 - v. Gateway
- b) Amos wants to set a cyber café at the town centre that consists of 25 computers; he approaches you on the best way to interconnect the nodes together. Answer the following questions:
 - i. In interconnection of the devices to a LAN he may use a passive or active hub, differentiate between the two (2 marks)
 - ii. After setting up the network you realize that there is a problem with viewing all interconnected devices. Explain any possible causes of the problem.(3 marks)
 - iii. Describe inbuilt troubleshooting utilities to be used in the testing process of the setup network. (4 marks)

- c) What is the major function of a firewall. (1 mark)

QUESTION FIVE – (15 MARKS)

- a) Define an operating system. (1 mark)
- b) Operating systems is vital for computer operations. Describe four functions of an operating system. (4 marks)
- c) Differentiate between the following.
- i. NOS and OS (2 marks)
 - ii. Peer to peer and client server networks (2 marks)
- d) With an aid of a well labeled diagram explain the structure of an operating system. (6 marks)