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**University Examinations 2014/2015**

STAGE III EXAMINATIONS FOR DIPLOMA IN INFORMATION TECHNOLOGY

**DIT 0302: NETWORK ESSENTIALS**

**DATE: DECEMBER 2014 TIME: 1**$^{1}/\_{2}$ **HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Define the following terms as used in networks (4 marks)
2. Topology
3. Adapter card
4. NOS
5. Modem
6. Networks are differentiated with respect to their capability and coverage. State and explain any network types (6 marks)
7. Describe the difference between the UTP cable and STP cable (2 marks)
8. Define a protocol (1 mark)
9. List and explain protocols used in computer networks (3 marks)
10. Define an operating system and explain its major functions (5 marks)
11. Define a server and explain any three types of servers (4 marks)
12. Differentiate between the seventh layer and first layer of the OSI model (2 marks)
13. Describe the roles of an NIC adapter card (3 marks)

**QUESTION TWO (15 MARKS)**

1. Explain the major subcategories of topologies (2 marks)
2. With an aid of a well labelled diagram explain the hierarchical star topology

(4 marks)

1. 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 your recommended layout (6 marks)
2. Explain major causes of data corruption during data transfer (3 marks)

**QUESTION THREE (15 MARKS)**

1. Describe the OSI model and state its governing body (2 marks)
2. Explain the advantages of using the OSI model in the communication process

(5 marks)

1. Give a brief description of the following OSI model layers (8 marks)
2. Network layer
3. Presentation layer
4. Transport layer
5. Data link layer

**QUESTION FOUR (15 MARKS)**

1. Explain the functions of the following network devices (5 marks)
2. Brouter
3. Bridge
4. Switch
5. Repeater
6. Gateway
7. Amos wants to set a cyber cafe at the town centre that consists of 25 computers; he approaches you on the best way to interconnect the nodes together. Answer the following question:
8. In interconnection of the devices to a LAN he may use a passive or active hub, differentiate between the two (2 marks)
9. 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)

1. Describe inbuilt troubleshooting utilities to be used in the testing process of the setup network (4 marks)
2. What is major function of a firewall (1marks)

**QUESTION FIVE (15 MARKS)**

1. Define an operating system (1 mark)
2. Operating systems is vital for computer operation. Describe four functions of an operating system (4 marks)
3. Differentiate between the following
4. NOS and OS (2 marks)
5. Peer to peer and client server networks (2 marks)
6. With an aid of a well labelled diagram explain the structure of an operating system

(6 marks)