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**University Examinations 2014/2015**

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

**CIB 3475: ADVANCED NETWORKING CONCEPTS**

 **DATE: APRIL 2015 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Briefly describe the following terms as used with computer networks:
2. Congestion (2 Marks)
3. Maximum transmission unit (2 Marks)
4. Backbone network (2 Marks)
5. Multiplexing (2 Marks)
6. Collision (2 Marks)
7. With the help of a diagram describe the three ways connection establishment process for TCP. Why is the third message necessary (6 Marks)
8. The IP version 4 address has two parts. State and briefly describe these parts ( 4 Marks)
9. Distinguish between token ring and slotted ring protocols for ring topology networks

(2 Marks)

1. State and briefly describe the three types of network standards (6 Marks)
2. Give two areas where UDP would be applied instead of TCP (2 Marks)

**QUESTION TWO (20 MARKS)**

1. Give three network standards organizations and specify the role played by each (6 Marks)
2. Briefly describe any three application layer protocols, stating the role played by the protocol and type of service offered (9 Marks)
3. Other than Internet Protocol (IP) state four protocols that operates at the network layer. Give one reason why the protocols are necessary (5 Marks)

 **QUESTION THREE (20 MARKS)**

1. Define switching as used in computer networks and briefly describe the three main switching techniques. (8 Marks)
2. A backbone network has three layers. State and briefly describe these three layers

(6 Marks)

1. Distinguish between
2. Source routing and hop-by-hop routing
3. Static routing and dynamic routing (4 Marks)
4. Given the IP address 168.12.49.7, determine the address class it belongs to and the subnet mask for the address (2 Marks)

**QUESTION FOUR (16 MARKS)**

1. Outline the seven layers of the ISO/OSI model in their correct order and give the functions performed by each (14 Marks)
2. Meru University would wish to extend the current network to the tuition block. Assuming that the current network ends at the engineering workshop. Outline three issues to be considered when designing the networks connection and give two options for each

 (6 Marks)

**QUESTION FIVE (20 MARKS)**

1. State and briefly describe the four main multiplexing techniques (8 Marks)
2. Briefly describe the following network technologies and give where they are used in computer networks
3. ISDN
4. ATM
5. FDDI
6. CDDI (12 Marks)