QP CODE 2070557404 Reg. No

DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – JUNE 2024

Semester: VII **055 CS 74 COMPUTER NETWORKS**

Time: 3:00 Hours **Max. Marks: 100**

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) What factors should be considered when choosing the most suitable network topology for a specific application? **(2 Marks)**
   b) Enumerate and describe different types of wired transmission media. **(8 Marks)**
   c) Give some examples of different types of networks. **(10 Marks)**
2. a) What are the primary functions of the data link layer in the OSI model? **(10 Marks)**
   b) How do network devices like switches and bridges operate at the data link layer? **(5 Marks)**
   c) Differentiate between Physical ring and logical ring. **(5 Marks)**
3. a) Discuss in detail about the IP address classes and subnet masking. **(10 Marks)**
   b) Differentiate between Packetizing and routing in network Layer. **(10 Marks)**
4. a) Compare and contrast the characteristics of TCP and UDP protocols. And explain In what scenarios would UDP be preferable to TCP? **(10 Marks)**
   b) Explain the concept of datagrams in UDP communication. And Discuss its Merits and Demerits. **(10 Marks)**
5. a) Explain the functions of the application layer in the OSI model. **(10 Marks)**
   b) How does an application level gateway firewall work? Explain with clear diagram. **(10 Marks)**
6. a) How does packet forwarding work in the network layer? **(10 Marks)**
   b) List out the protocols which is used in the network layer with explanation? **(10 Marks)**
7. a) What is the purpose of SSL/TLS on top of the transport layer? **(10 Marks)**
   b) Explain what the core functionalities are provided by the transport layer in the OSI model. **(10 Marks)**