1. ***[5 marks]* Is Token Ring Data-Link protocol point-to-point or multi-access?**
2. ***[5 marks]* What framing technique does Token Ring use?**
3. ***[5 marks]* Create a simple diagram of the structure of a frame for Token Ring that includes the name, size, and position of all fields…**
4. ***[5 marks]* Provide a description of the purpose of each field in the frame…**
5. ***[5 marks]* What kind of network is Token Ring primarily used in? (LAN/WAN/etc.)**
6. ***[5 marks]* Explain why Token Ring is used for the kind of network you have indicated…**

MUST INCLUDE AN EXPLANATION / EXAMPLE

Within the Open Systems Interconnection (OSI) model, Token Ring is a **layer 2** Data-Link layer protocol and is a direct competitor to Ethernet. Like Ethernet, Token Ring utilises Media Access Control (MAC) addresses to manage and transmit data within a Local Area Network (LAN) between hosts. **Token Ring is an implementation of point-to-point communication**.

A Token Ring network typically consists of stations connected in a ring or, more commonly, a star topology, where all stations are connected sequentially. A token is the frame of which stations can read and write data to and then be transmitted throughout the network. Tokens are passed sequentially from one host to the next and circulate around the network. This is called Token Passing.

When a station looks to transmit data, first they must receive an empty token which is circulating in the network. This station can then insert their data into the token and pass the data to the next station in the network. When a station receives a token that is not destined for them, they will not alter the token and just pass the token to the next station. When the token eventually arrives at the token’s desired destination, the data will be read, an acknowledgement flag to the end of the frame and the Token Passing process will continue. Finally, the token will reach the sending station that originally set the data in the token, see that the acknowledgement flag exists and remove the data from the token, transforming it back into an empty token. Finally, the Token Passing process will continue allowing other stations to use the empty token for their own data transmission within the network. This demonstrates the point-to-point communication functionality of a Token Ring network.

<https://www.ibm.com/docs/en/i/7.2?topic=standards-token-ring-networks>

<https://www.pcmag.com/encyclopedia/term/token-ring>

<https://www.blackbox.be/en-be/page/25363/Resources/Technical-Resources/Black-Box-Explains/networking-standards/token-ring>

<https://www.techtarget.com/searchnetworking/definition/Token-Ring>

<https://computer.howstuffworks.com/ethernet17.htm> (frame gives permission to transmit – token passing method)

<https://www.geeksforgeeks.org/token-ring-frame-format/> (Token Ring Frame Format)

<https://www.youtube.com/watch?v=5F_IBfqt-Cs> (Token Ring Frame Format)