Instructions

Answer all the **three** questions. You may choose either Part A or Part B.

Ideally you may take 15 minutes to answer each question. However the only requirement is that all the questions need to be answered within 45 minutes.

You are expected to write the answers neatly on A4 sheets(you may use any neat paper instead) of paper, with your name and register number on all pages

You are expected to make use of any standard scanner application and convert your answer into ONE PDF file , before submitting.

Answers could be uploaded from 9:30 am to 10 am only.

Please feel free to contact me at 9447940995 if you have any queries

CO2 Familiarize with various networking hardware. (Modules : M2)

Question 1

A) An Organization wants to connect multiple-floor buildings on a campus. Each single-floor building needs all the machines to be connected. Each multiple-floor building should ensure that it connects each LAN on a floor. Also it needs to interconnect all the LANs. Suggest an architecture that could be used as a distribution network. List the merits of your suggestion.

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B) Most routing strategies have **evolved from the requirements of packet-switching networks.** Do you agree with the statement? Substantiate. What are the **strategies that have been used in routing?** Give the merits and demerits of each strategy.

CO3 Describe various networking protocols. (Modules : M3)

Question 2

A) Given here is an ip address **2001:db8:3c4d:15::1a2f:1a2b** Identify the basic IP address version used here? What are the advantages/disadvantages of this IP version ? How can you expand the given IP address? Explain the process of expansion. What are its practical applications?

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B) "Routing algorithms should be considered with an engineering attitude. It is not enough to focus on selecting the most sophisticated state-of-the-art algorithm for a given problem. Evolution capability, potential for reuse, and the development cost over the system lifetime are equally important aspects." - **Jukka K. Nurminen** University of Helsinki stated in his research paper. Explain how you will make use of the above information in a certain kind of routing where the data is sent to only nodes which want to receive the packets. Identify the type of routing. How can you detect and discard duplicates and loops? What are the other routing types?

Question 3

A) "Routing algorithms should be considered with an engineering attitude. It is not enough to focus on selecting the most sophisticated state-of-the-art algorithm for a given problem. Evolution capability, potential for reuse, and the development cost over the system lifetime are equally important aspects." - **Jukka K. Nurminen** University of Helsinki stated in his research paper. Analyze this statement and try to find Why distance vector routing and link state routing are not good candidates for interdomain routing? Explain with an example**.**

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B) Each node knows the state (type, condition, cost) of its link ONLY. However, the topology can be compiled from the partial knowledge of each node. Identify the routing technique denoted here. Explain with the help of a neat diagram how **the whole topology can be compiled from the partial knowledge of each node.**