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| **DIT UNIVERSITY DEHRADUN**   |  |  | | --- | --- | | **B.TECH (CSE)** | **MIDTERM EXAMINATION,EVENSEM 2022-23 (SEM VI)** | | | | | | | | | | | | | |
| **Roll No.** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Subject Name: Advanced Computer Networks** | | | | | | | | | | | | |

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| **Time: 2 Hours** | **Total Marks: 50** |
| **Note: All questions are compulsory. No student is allowed to leave the examination hall before the completion of the exam.**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Q.1)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | **(a)** | **What are the advantages of Modular Network Design. Describe different layers of Hierarchical Network Design.** | **BTL-I** | **CO- 1** | |  | **(b)** | **A building named `Vedanta’ has 5 floors. Design the network of a building using hierarchical network design. Note: Use one `layer 2 switch’ device at each floor, three `layer 3 switch’ devices for connecting different floors, and two `routers’ for connecting `layer 3 switch’ devices.** | **BTL- VI** | **CO- 2** | |  | **(c)** | **Explain the `Redundancy’ design characteristic in hierarchical network design. How is it helpful in case of route failure?** | **BTL- II** | **CO- 1** | |  | **(d)** | **Name the different modules of Cisco Enterprise Composite Network Model.** | **BTL- I** | **CO- 1** | |  |  | **[4 x 2.5= 10]** |  |  | |  | | |  |  | | **Q.2)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | **(a)** | **Draw the flow diagram of Cisco PDIOO Model.** | **BTL- I** | **CO- 1** | |  | **(b)** | **Discuss the restrictions or constraints in designing the network.** | **BTL- II** | **CO- 1** | |  | **(c)** | **What are the two models used in network design? Which model is better?** | **BTL- IV** | **CO- 1** | |  | **(d)** | **Name the various documents maintained during the network design.** | **BTL- I** | **CO- 1** | |  |  | **[4 x 2.5= 10]** |  |  | |  | | |  |  | | **Q.3)** | **Attempt any two Parts:** | | **BTL** | **CO** | |  | **(a)** | **What is Multilayer Switching? Describe various components and functionality of a multilayer switch.** | **BTL- II** | **CO- 1** | |  | **(b)** | **Explain the various security attacks. Describe the native security provided by the switch to mitigate attacks.** | **BTL- II** | **CO- 4** | |  | **(c)** | **Explain the functioning of Cisco Express Forwarding.** | **BTL- II** | **CO- 1** | |  |  |  |  |  | |  |  | **[2 x 5= 10]** |  |  | |  | | |  |  | | **Q.4)** | **Attempt any two Parts :** | | **BTL** | **CO** | |  | **(a)** | **Explain Route Summarization and Hierarchical IP address design.** | **BTL- II** | **CO- 1** | |  | **(b)** | **Consider a network in which Router A has the following subnet routes in its routing table: 192.168.30.0/29, 192.168.30.8/29, and 192.168.30.16/29. What is the summary route for Router A’s subnets?** | **BTL- III** | **CO- 2** | |  | **(c)** | **Consider a network in which Router B has the following subnet routes in its routing table: 192.168.3.0/28, 192.168.3.16/28, 192.168.3.32/28, and 192.168.3.48/28. What is the summary route for Router B’s subnets?** | **BTL- III** | **CO- 2** | |  |  | **[2 x 5= 10]** |  |  | |  | | |  |  | | **Q.5)** | **Attempt any two Parts :** | | **BTL** | **CO** | |  | **(a)** | **An organization is granted the block 130.34.12.64/26. The organization needs four subnetworks, each with an equal number of hosts. Design the subnetworks and find the information about each network.** | **BTL- III** | **CO- 2** | |  | **(b)** | **An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets as shown below:**   1. **One subblock of 120 addresses.** 2. **One subblock of 60 addresses.** 3. **One subblock of 10 addresses.** | **BTL- III** | **CO- 2** | |  | **(c)** | **Explain the various IPv4 routing protocols.** | **BTL- II** | **CO- 1** | |  |  | **[2 x 5= 10]** |  |  | | **-----END OF PAPER ----** | | |  |  | | |