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

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| **Time: 3 Hours** | **Total Marks: 100** |
| **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 :** | | |  | (a) | What are the different wireless standards used in communication? Differentiate between them. | |  | (b) | What is SSID? How is it used in connection establishment? | |  | (c) | Explain WEP and WPA protocols. Which one is better in providing wireless security? | |  | (d) | Define the following terms used in cellular networks:   1. Cell 2. Modulation 3. Time Division Multiplexing (TDMA) 4. Frequency Division Multiplexing (FDMA) 5. Code Division Multiplexing (CDMA) | |  |  | **[4 x 5= 20]** | |  | | | | **Q.2)** | **Attempt all Parts :** | | |  | (a) | Which shape is universally adopted for designing a cell? Explain why. | |  | (b) | Demonstrate `key to SAFE’ using an appropriate diagram. | |  | (c) | Explain content networking design. | |  | (d) | Explain the Distributed DoS (DDoS) attack with the help of a diagram. | |  |  | **[4 x 5= 20]** | |  | | | | **Q.3)** | **Attempt any two parts :** | | |  | (a) | What is M/M/1 queue. If `µ’ is the mean service rate, and `λ’ is the mean arrival rate, calculate the following metrics:   1. Probability of the system having `n’ number of customers. 2. Expected number of customers in the system. 3. Average time spent by the customer in the system. | |  | (b) | Explain the following processes in detail:   1. Poisson Process 2. Markov Process 3. Birth-death Process | |  | (c) | Explain the different generations in cellular networks with their advantages and disadvantages. | |  |  | **[2 x 10= 20]** | |  | | | | **Q.4)** | **Attempt any two parts :** | | |  | (a) | Describe the following attacks:   1. TCP SYN Flooding 2. ICMP Smurf Flooding 3. UDP Flooding | |  | (b) | What are access attacks. Explain its various types in detail. | |  | (c) | Consider the following nodes in a wireless ad-hoc network:  wire_ass.jpg  Here, node `B’ is in the communication range of nodes `A’ and `C’.   1. Explain hidden terminal problem by considering the above wireless network. 2. Explain Exposed terminal problem by considering the above wireless network. | |  |  | **[2 x 10= 20]** | |  | | | | **Q.5)** | **Attempt any two parts :** | | |  | (a) | What are the different phases of SAFE campus design. Explain the following terms in detail:   1. Attack Surface 2. Business Flows 3. Security Capabilities | |  | (b) | Describe various network security best practices. | |  | (c) | Explain three phases of communication from the mobile host to the remote host. | |  |  | **[2 x 10= 20]** | | -----END OF PAPER ---- | | | | |