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**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SEVENTH SEMESTER B.TECH DEGREE EXAMINATION (R), DECEMBER 2023****ELECTRONICS AND COMMUNICATION ENGINEERING****(2020 SCHEME)****Course Code : 20ECT421****Course Name: Computer Networks****Max. Marks : 100****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Define protocol. List any two protocols used in transport layer and data link layer.
2. Explain the POP3 protocol.
3. List the functions of transport layer.
4. Sketch the sequence of operations in transferring data using stop and wait protocol.
5. Explain about Automatic Repeat Request (ARQ).
6. Draw the IPv4 datagram format.
7. Explain the Cyclic Redundancy Check (CRC).
8. Describe the format of a MAC address.
9. Sketch the IEEE 802.11 frame format.
10. Illustrate the active scanning process for access points.

**PART B*****(Answer one full question from each module, each question carries 14 marks)*****MODULE I**

11. a) Explain the layered architecture of TCP/IP model and enumerate the addressing strategies used in each layer. (8)  
b) Explain the following protocols.
  - i. SMTP (6)
  - ii. MIME
  - iii. IMAP

**OR**

12. a) With suitable diagrams, summarize the functions of different layers of OSI reference model. (8)  
b) Explain in detail circuit-switched networks. (6)

**MODULE II**

13. a) Analyse the operation of go back N protocol in which the packet number 2 is lost and the timeout for packet 2 happens after transmitting packet number 5. (8)
- b) Explain in detail about UDP protocol. (6)

**OR**

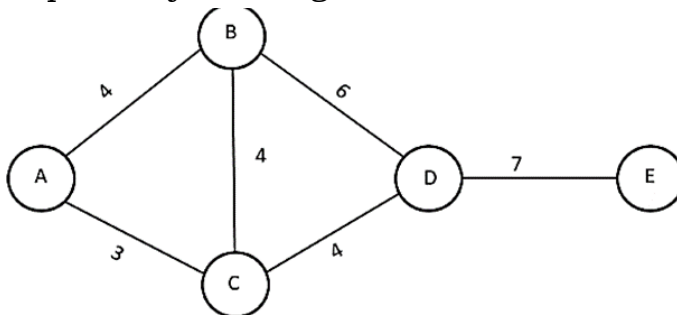
14. a) Analyse the function of selective repeat ARQ in which the packet number 2 and ACK of packet number 4 are lost. (8)
- b) Explain the operation of TCP protocol along with its functional sequence diagram and segment format. (6)

**MODULE III**

15. a) Explain with necessary diagrams, how the distance vector routing learns the route from neighbouring nodes? (8)
- b) Describe how DHCP protocol helps in assigning IP addresses? (6)

**OR**

16. a) Explain Dijkstra's Algorithm for the following network arrangement. (8)



- b) Sketch and explain the IPv6 datagram format. (6)

**MODULE IV**

17. a) With the help of an example, illustrate the usage of checksum in detecting errors. (8)
- b) Explain the frame structure of IEEE 802.3 protocol. (6)

**OR**

18. a) With the help of algorithm, explain the function of CSMA/CD protocol. (8)
- b) How does multiplexing helps in sending data from various processes and explain the method by which the data is delivered to the intended process in the destination system. (6)

**MODULE V**

19. a) Analyze the operation of M/G/1 queuing model. (8)
- b) State and explain Little's theorem. (6)

**OR**

20. a) With the help of frame structure explain the IEEE 802.11 protocol. (8)
- b) Elabrate poisson process is used to model packet arrival in a computer network? (6)

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