

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S7 (R,S) Examination November 2025 (2019 Scheme).

Course Code: ECT423**Course Name: COMPUTER NETWORKS****Max. Marks: 100****Duration: 3 Hours****PART A***Answer all questions, each carries 3 marks.*

Marks

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| 1 | Define protocol and protocol standardization. | (3) |
| 2 | Differentiate MIME and POP3. | (3) |
| 3 | Discuss transport layer multiplexing with its requirements. | (3) |
| 4 | Draw and explain the UDP segment structure. | (3) |
| 5 | Define virtual circuit switching and its advantages. | (3) |
| 6 | Compare and contrast OSPF and BGP. | (3) |
| 7 | Explain how checksum is used for error detection and correction. | (3) |
| 8 | Describe the need of link virtualization. | (3) |
| 9 | What is a Poisson process? | (3) |
| 10 | A restaurant holds about 60 people, and the average person will be in there about 2 hours. On average, how many customers arrive per hour? If the restaurant queue has 30 people waiting to be seated, how long does each person have to wait for a table? | (3) |

PART B*Answer any one full question from each module, each carries 14 marks.***Module I**

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|----|---|-----|
| 11 | a) Describe different physical media used in computer networking briefly. | (7) |
| | b) Explain the working, functions and disadvantages of simple mail transfer protocol. | (7) |

OR

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|----|---|-----|
| 12 | a) Clearly differentiate TDM, FDM and statistical multiplexing in computer network. | (9) |
| | b) Explain the domain name system with neat sketches. | (5) |

Module II

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|----|---|-----|
| 13 | a) How ARQ protocols establishes reliable data transfer. | (5) |
| | b) Suppose that TCP's current estimated values for the round trip time (estimatedRTT) and deviation in the RTT (DevRTT) are 310 msec and 45 msec, | (9) |

respectively. Suppose that the measured values of the RTT is 370 msec. Compute TCP's new value of DevRTT, estimatedRTT, and the TCP timeout value after the measured RTT value. Use the values of $\alpha = 0.125$, and $\beta = 0.25$.

OR

- 14 a) Discuss the details of selective repeat ARQ with diagrams. (7)
- b) Draw and explain TCP segment structure and its connection procedure. (7)

Module III

- 15 a) Explain the network address assignment strategies? (6)
- b) How routing is done with Routing Information Protocol? (8)

OR

- 16 a) Compare and contrast IPV4 and IPv6 addresses with its datagram formats. (8)
- b) Explain distance vector routing algorithm with an example. (6)

Module IV

- 17 a) A bit stream 1101011011 is transmitted using the standard CRC method. The generator polynomial is x^4+x+1 . What is the actual bit string transmitted? (5)
- b) Explain Carrier Sense Multiple Access Protocol. How CSMA/CA differs from CSMA/CD. (9)

OR

- 18 a) Write a brief note on different multiple access protocols. (6)
- b) State the significance of MAC address and how the physical address is obtained from IP address. Explain it. (8)

Module V

- 19 a) Explain the need of WLAN. Describe IEEE 802.11 in detail. (7)
- b) State and prove Little's theorem. (7)

OR

- 20 a) How the error analysis in Go-Back-N ARQ system is done. (7)
- b) Derive the P-K formula for M/G/1 queue. (7)
