

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

**Course Code: IT307****Course Name: Computer Networks**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) Compare and contrast the various guided transmission media? (5)
- b) Explain with a neat diagram, the reference model which is being used in the current scenario? (5)
- c) Describe about bridges, the layer where it appears and its use? (5)
- 2 a) Explain the working of stop n wait protocol in detail (5)
- b) With the help of an example, explain the method of error correction using Hamming code? (10)
- 3 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 the context in which Selective Repeat protocol is preferred over Go back n protocol and vice-versa (3)
- c) Describe briefly about the classification of communication satellites and its uses? (7)

**PART B***Answer any two full questions, each carries 15 marks.*

- 4 a) Explain about Exponential Back off algorithm and its relevance? (5)
- b) State the scenario in which slotted Aloha outperforms pure Aloha and what are the major attributes that contribute towards this? (5)
- c) What is count-to-infinity problem and state the routing protocol which gives rise to this? (5)
- 5 a) What is random early detection? (5)
- b) Describe the working of link state routing with the help of an example network? (10)
- 6 a) State Optimality Principle and its importance in routing? (4)
- b) Why is dynamic channel allocation preferred over static allocation? Explain with suitable examples? (5)

- c) Suppose that the pure ALOHA protocol is used to share a 56 Kbps satellite channel and the frames are 1000 bits long. Find the maximum throughput of the system in frames/second? (6)

**PART C**

*Answer any two full questions, each carries 20 marks.*

- 7 a) With the help of a proper diagram, describe the structure of a TCP segment header? (6)
- b) Consider the effect of using slow start on a line with a 10 msec RTT and no congestion. The receiver window is 24 KB and the maximum segment size is 2 KB. How long does it take before the first full window can be sent? (5)
- c) Explain the three-way handshake protocol and describe the three protocol scenarios that occur in it? (9)
- 8 a) Explain the architecture of an Email system with proper diagrammatic representation of the same? (8)
- b) Explain about HTTP caching and its relevance in web communication? (5)
- c) Explain about the concept of cookies and how it adds up to the performance of HTTP? (7)
- 9 a) Explain Remote Procedure Call and various steps involved in it? (5)
- b) What is Silly Window Syndrome and explain how it degrades TCP performance? (5)
- c) Explain briefly about P2P file sharing (5)
- d) Differentiate Persistent and non-persistent connections with suitable examples? (5)

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