

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth semester B.Tech degree examinations (S), September 2020

Course Code: CS306

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 | Discuss the uses of computer networks in home applications | (3) |
| 2 | Why are the layers from Transport layer and above called truly end to end layers? | (3) |
| 3 | Describe error control and flow control in data link layer. | (3) |
| 4 | Demonstrate the significance of sequence numbers in stop and wait ARQ. | (3) |

PART B

Answer any two full questions, each carries 9 marks.

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|---|---|-----|
| 5 | Discuss the purpose of the various layers in ISO-OSI reference model with the help of a diagram. | (9) |
| 6 | a) Show the design issues of physical layer and network layer. | (4) |
| | b) Discuss about Go-Back-N ARQ. The timer for only the first outstanding frame is set in Go-Back-N ARQ. Analyse the protocol and illustrate how all the outstanding frames are managed with just one timer. | (5) |
| 7 | How does Multiple Access with Collision Avoidance solve the hidden node problem and exposed node problem in Wireless LANs? | (9) |

PART C

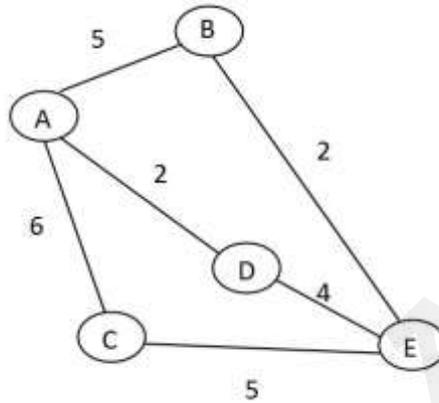
Answer all questions, each carries 3 marks.

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|----|---|-----|
| 8 | How is routing table different from forwarding table? | (3) |
| 9 | Demonstrate reliable flooding with the help of an example. | (3) |
| 10 | Describe any two congestion control methods in virtual circuit subnets. | (3) |
| 11 | Describe the techniques for achieving good Quality of Service. | (3) |

PART D

Answer any two full questions, each carries 9 marks.

- 12 a) Build the routing table for node C in the given network using Link State Algorithm. Show step wise progress of the table's tentative and confirmed list with explanation. (6)



- b) Enumerate the additional features added by OSPF to the basic link state algorithm. (3)
- 13 a) Compare datagram network with virtual circuit network. (3)
- b) Specify the significance along with the size of the following fields in an IP packet header: DF, MF, Fragment offset, Time-to-live. (6)
- 14 a) How does Random Early Detection work? (3)
- b) Illustrate the working of leaky bucket algorithm with the help of diagram. (6)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Give the significance of RARP. (4)
- b) Compare the working of BOOTP and DHCP. (6)
- 16 a) Draw the IPv6 header. Explain the purpose of the fields flow label and hop limit. (6)
- b) How is the issue of very large IPv6 packets resolved at routers? (2)
- c) Is there any checksum field included in the packet header of IPv6? Justify your answer. (2)
- 17 a) List the additional issues that an external gateway routing protocol has to deal with. (2)
- b) Describe stub networks, multi-connected networks and transit networks. (3)
- c) BGP easily solves count-to-infinity problem. Justify the statement by explaining the working of BGP with the help of an example. (5)

- 18 a) What is the significance of circular sending and receiving buffers in TCP? (5)
How are they used?
- b) How does TCP ensure reliable service? (2)
- c) Explain flow control and error control in TCP. (3)
- 19 a) Why do we need SNMP protocol? Describe the three components of SNMP. (5)
- b) Explain any 5 types of SNMP messages (5)
- 20 a) What do you mean by socket address? (2)
- b) Illustrate silly window syndrome. (2)
- c) Give the significance of MIME. Explain five message headers defined by MIME. (6)
