

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CS306

Course Name: COMPUTER NETWORKS (CS)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|---|--|-----|
| 1 | How are computer networks classified on the basis of physical size? | (3) |
| 2 | Differentiate between normal and asynchronous balanced modes of operations in HDLC. | (3) |
| 3 | What are the reasons for using Layered Architecture in Computer Networks? Define the terms protocol and interface. | (3) |
| 4 | Draw and explain the frame format for Ethernet. | (3) |

PART B

Answer any two full questions, each carries 9 marks.

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|---|--|-----|
| 5 | a) What are the OSI service primitives for connection oriented service? | (4) |
| | b) Explain the phases in a PPP connection with the help of a transition diagram. | (5) |
| 6 | a) How collision is avoided in CSMA/CA? Describe the different strategies used for this. | (5) |
| | b) List out the key design issues that occur in Computer Networks. | (4) |
| 7 | a) Describe the ISO/OSI layered architecture with the help of a neat diagram. | (5) |
| | b) Write notes on IEEE 802.5 standard. | (4) |

PART C

Answer all questions, each carries 3 marks.

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|----|---|-----|
| 8 | What is flooding? Describe any two situations where flooding is advantageous. | (3) |
| 9 | Compare classful and classless addressing, giving examples for both. | (3) |
| 10 | Write short note on RIP. | (3) |
| 11 | List and explain any three closed loop congestion control techniques. | (3) |

PART D

Answer any two full questions, each carries 9 marks.

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|----|--|-----|
| 12 | a) Describe the format of IPv4 datagram with the help of a diagram, highlighting the significance of each field. | (6) |
|----|--|-----|

- b) Differentiate between static and dynamic routing. (3)
- 13 a) Explain distance vector routing with an example. (6)
- b) Define Subnetting. What are the advantages of Subnetting? Explain with an example (3)
- 14 a) Discuss the common techniques used in computer networks to improve the QoS. (4)
- b) Explain the different steps in link state routing. (5)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Write notes on the messages and message formats used in IGMP (5)
- b) Describe the *name-address* resolution techniques used in DNS (5)
- 16 a) Write notes on MIME (5)
- b) Differentiate between BOOTP and DHCP. (5)
- 17 a) Explain how routing is done using BGP (5)
- b) Describe the operation and packet format of UDP. (5)
- 18 a) What is the use of ARP? Explain ARP operation and packet format. (7)
- b) Distinguish between partially qualified and fully qualified domain names (3)
- 19 a) Explain the three different phases in a TCP transmission with the help of diagrams. (7)
- b) List and explain the different types of error reporting messages used by ICMP. (3)
- 20 a) Explain the File Transfer Protocol (FTP) and its features. (5)
- b) Draw and explain the datagram format for IPv6. (5)

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019

Course Code: CS306

Course Name: COMPUTER NETWORKS

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

		Marks
1	Distinguish between interface, protocol and layer in network software.	(3)
2	What are point to point and broadcast networks?	(3)
3	Draw the different frame formats in HDLC.	(3)
4	How does pure aloha and slotted aloha differ?	(3)

PART B

Answer any two full questions, each carries 9 marks.

5	a) List the design issues of layered network software.	(3)
	b) Explain WAN and communication subnet?	(3)
	c) Compare TCP/IP Reference model and OSI Reference model.	(3)
6	a) With neat diagram, explain OSI reference Model.	(6)
	b) Explain the working of CSMA/CD?	(3)
7	a) Explain how Token management is done in IEEE 802.5.	(3)
	b) Distinguish between switches and bridges.	(3)
	c) List the features of Gigabit Ethernet.	(3)

PART C

Answer all questions, each carries 3 marks.

8	List the network layer functions.	(3)
9	Differentiate between Flooding and broadcasting	(3)
10	How token bucket algorithm performs congestion control?	(3)
11	List the private IP address ranges of class A, B and C?	(3)

PART D

Answer any two full questions, each carries 9 marks.

12	a) Explain how routing is performed using link state algorithm? Illustrate with an example.	(6)
	b) Give the relevance of age field in a link state packet.	(3)
13	a) Explain any two congestion control algorithms	(5)

- b) Discuss about the routing for mobile hosts. (4)
- 14 a) What is QoS? Explain any two methods to ensure QoS. (6)
- b) Subnet the Class C IP Address 206.16.2.0 so that you have 30 subnets. (3)
- What is the subnet mask for the maximum number of hosts?
- How many hosts can each subnet have?

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) How does BGP avoid count to infinity problem? (3)
- b) Draw the IPv6 fixed header format. (3)
- c) Explain the role of ICMP. (4)
- 16 a) Define address resolution problem. Explain about RARP (6)
- b) Give the importance of BOOTP. (4)
- 17 a) Discuss about the issues with IPv6 (3)
- b) Explain how IGMP supports internet multicasting (7)
- 18 a) What are port numbers, give its importance in computer communication? (3)
- b) Distinguish between TCP and UDP header format. (7)
- 19 a) How FTP handles file transfer? (3)
- b) Explain various features of MIME? (4)
- c) What is the role of SMTP in E Mail message transfer? (3)
- 20 a) Explain DNS message types (4)
- b) List the components of SNMP? (3)
- c) Explain the procedure for calculating the UDP checksum? (3)

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

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 | What are service primitives in computer networks? | (3) |
| 2 | Differentiate between 1 persistent and p-persistent CSMA. | (3) |
| 3 | Draw the frame format of Ethernet. | (3) |
| 4 | List the features of LAN. | (3) |

PART B

Answer any two full questions, each carries 9 marks.

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|---|--|-----|
| 5 | a) Explain Stop-and-wait, Go-Back-N and Selective Repeat ARQ techniques. | (6) |
| | b) Differentiate between connection oriented and connectionless services. | (3) |
| 6 | a) How computer networks are categorized based on transmission technology and scale? Explain the features of each network. | (6) |
| | b) Distinguish between bit stuffing and character stuffing in framing. | (3) |
| 7 | a) Explain about the MAC protocol in Ethernet. | (5) |
| | b) With the TCP/IP protocol stack, explain TCP/IP Reference model. | (4) |

PART C

Answer all questions, each carries 3 marks.

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|----|--|-----|
| 8 | List the features of RIP. | (3) |
| 9 | List the message types in OSPF. | (3) |
| 10 | What is IP subnetting? Illustrate with example. | (3) |
| 11 | List the IP address ranges and subnet masks of class A, class B and class C. | (3) |

PART D

Answer any two full questions, each carries 9 marks.

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|----|--|-----|
| 12 | a) Illustrate distance vector routing algorithm with an example. | (5) |
| | b) Differentiate classfull and classless addressing schemes | (4) |
| 13 | a) Explain OSPF routing algorithm. | (5) |
| | b) Discuss about any two congestion control algorithms. | (4) |
| 14 | a) How routing is handled in mobile hosts? | (4) |

- b) Subnet the Class C IP Address 195.1.1.0 So that you have 10 subnets each with a maximum 12 hosts on each subnet. (5)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Draw and explain the message format for the ICMP echo request and echo reply messages. (5)
- b) Explain about the controversies regarding IPv6 (5)
- 16 a) How BOOTP performs when the client and the server are on different networks? (5)
- b) What is multicasting? Mention the role of IGMP in IP multicasting. (5)
- 17 a) How the routing updates are communicated among different Autonomous systems? Give the features of any one Exterior Gateway Protocol. (6)
- b) Draw and explain IPv6 header format. (4)
- 18 a) List the transport layer functions. (3)
- b) Differentiate between TCP and UDP. (7)
- 19 a) How SMTP handles a mail transfer from Alice to Bob? (4)
- b) Give the importance of MIME. What are the different MIME types? (6)
- 20 a) What is the role of SNMP? Explain its components. (7)
- b) Differentiate between DNS query and response messages. (3)

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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

- | | | |
|---|---|-----|
| 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

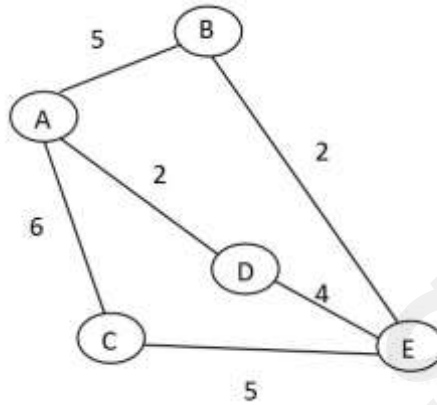
Answer all questions, each carries 3 marks.

- | | | |
|----|---|-----|
| 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)
