



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

End Semester Examination - Synoptic

Nov 2017

Max. Marks: 100

Class: T.E.

Course Code: CPC504

Name of the Course: Computer Networks

Duration: 180 Min

Semester: V

Branch: Computers

Instruction:

- (1) All questions are compulsory
- (2) Draw neat diagrams
- (3) Assume suitable data if necessary

Q No.	Question	Max. Marks	CO
Q.1(a)	List any two protocols used by each Layer of OSI Reference Model. (any five layers) Answer: (0.5 mark for each protocol) * 2 - 1 mark * (5 Layers) - 5 marks	05	CO1
Q.1(b)	Justify the need of NVT with suitable diagram. Answer: Diagram of NVT - 1 mark Justification for NVT - 4 marks	05	CO3
Q.1(c)	Differentiate between Guided Media and Unguided Media (any five points). Answer: (1 mark for each difference) * 5 - 5 marks	05	CO1
Q.1(d)	List implementation categories of Standard Ethernet and describe any one. Answer: (0.5 mark for each category) * 4 - 2 marks Explanation of the one implementation category - 3 marks	05	CO1
Q.2 (a)	The following character encoding is used in a data link protocol: A: 01000111 B: 11100011 FLAG: 01111110 ESC: 11100000 Show the bit sequence transmitted (in binary) for the character frame "A ESC ESC FLAG FLAG A B" when each of the following framing methods is used: (i) Byte count. (ii) Byte stuffing. (ii) Bit stuffing. Answer: Correct Binary sequence using Byte Count - 2 marks Correct Binary sequence using Byte Stuffing - 4 marks Correct Binary sequence using Bit stuffing - 4 marks	10	CO2

Q.2 (b)	<p>If dataword is represented by 11101010101, then calculate the number of parity bits needed by the Hamming Code. Consider an even parity and calculate codeword for the given message.</p> <p>Answer: Calculation of Number of Parity bits with suitable formula - 2 marks (2 marks for Calculation of each parity bit with formula) * 4 - 8 marks</p>	10	CO2
Q.3 (a)	<p>Given a Class C address 200.30.10.0 and subnet mask as 255.255.255.192 answer following:</p> <p>(i) Number of subnets created (ii) Number of IP address per subnet (iii) Calculate IP addresses of First host for all subnets (iv) Calculate IP addresses of Last host for all subnets (v) Broadcast addresses of each subnet for all subnets.</p> <p>Answer: Correct Number of subnets - 2 marks Correct Number of IP addresses per subnet - 2 marks Correct IP addresses of First host for all subnets - 2 marks Correct IP address of Last host for all subnets- 2 marks Correct Broadcast address of each subnet for all subnets - 2 marks</p>	10	CO2
Q.3 (b)	<p>Calculate Checksum for an UDP segment using data given below</p> <p>(i) Source IP is 128.50.10.2 (ii) Destination IP is 220.39.40.110 (iii) The Flags of pseudo header are all set to 0's (iii) Protocol Number used to identify UDP is 17 (v) UDP total length is 16 (vi) The source port number is 49152 (vii) The Destination Port number is 53 (viii) The message transmitted is "HI" (Convert Alphabets to ASCII and then ASCII to 8-bit Binary numbers)</p> <p>Answer: (1 marks for each correct conversion of UDP header field to Binary) * 8 - 8 marks Calculation of Checksum - 2 marks</p>	10	CO2
Q.4 (a)	<p>Elaborate on traffic shaping using Leaky Bucket Algorithm with suitable diagram.</p> <p>Answer: Diagram for Leaky Bucket Algorithm - 2 marks Explanation of the algorithm - 8 marks</p> <p style="text-align: center;">OR</p> <p>Illustrate working of Choke packet and Back Pressure technique for Closed Loop Congestion Control with suitable diagrams.</p> <p>Answer: Diagram for Choke packet - 1mark Working of Choke packet - 4 marks Diagram for Choke Pressure - 1mark Working of back Pressure - 4 marks</p>	10	CO2

Q.4 (b)	<p>What is Count-to-Infinity problem in Distance Vector Routing (DVR)? Describe the three techniques used to overcome Count-to-Infinity in DVR.</p> <p>Answer: Explanation of Count-to-infinity - 4 mark (2 marks for each technique) * 3 - 6 marks</p> <p style="text-align: center;">OR</p>	10	CO2
	<p>Describe the Link State Routing algorithm (LSR) with its advantages.</p> <p>Answer: (2 marks for each step of LSR algorithm) * 4 - 8 marks Advantages of LSR - 2 marks</p>	10	CO2
Q.5 (a)	<p>List roles of SNMP and describe SNMP PDU packet format with suitable diagram.</p> <p>Answer: Role of SNMP - 2 marks Diagram of SNMP PDU format - 1 mark Explanation of fields in SNMP PDU - 7 marks</p> <p style="text-align: center;">OR</p>	10	CO4
	<p>Describe atleast 8 types of Object identifiers in MIB-2 along with Object Identifier tree diagram.</p> <p>Answer: Diagram of MIB-2 object identifier tree - 2 marks (1 mark for each type of object identifier) * 8 - 8 marks</p>	10	CO4
Q.5 (b)	<p>Discuss TCP header with suitable diagram.</p> <p>Answer: Diagram of TCP header - 2 marks Explanation of TCP header fields - 8 marks</p> <p style="text-align: center;">OR</p>	10	CO2
	<p>Illustrate Connection Establishment and Connection Termination phases of Three-way Handshake in TCP with suitable diagrams.</p> <p>Answer: Diagram of connection establishment - 1 marks Working of connection establishment - 4 marks Diagram of connection termination - 1 marks Working of connection termination - 4 marks</p>	10	CO2