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-(Re-Exam)-Synoptic

July 2019

Max. Marks: 60 **Duration: 180 Min**

Class: T.E. **Semester: V**

Course Code: CE51 **Branch: Computers**

Name of the Course: Data Communication and Computer Networks

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 three layers of OSI Model and discuss two functions of each layer. **Answer:** (1 mark for each function of layer) * 2 - 2 marks * 3 layers - 6 Marks	06	CO2
Q.1(b)	Differentiate between Fibre Optic Cable, Twisted Pair cable and Coaxial Cable?(Any 6 points) **Answer:** (1 mark for each correct Difference) * 6 - 6 marks	06	CO1
Q.2(a)	Calculate number of parity bits needed to correct a single bit error in dataword "1011" using Hamming Code and calculate codeword using even parity for given dataword. (Please mention formula) **Answer:** Calculation for number of parity bit - 1 marks (1 mark for each parity bit value) * 3 - 3 marks Formula used for calculation - 1 Marks Correct codeword - 1 marks **OR**	06	CO3
	Deduct the number of redundant bits to be added and calculate the codeword using Cyclic Redundancy Check with generator function G(x)=$x^3 + 1$ for the message represented as M(x)= $x^3 + x^2 + x$. (Please mention formula) **Answer:** Calculation for the number of redundant bits - 1 marks (1 marks for each step)*4 - 4 marks Correct codeword - 1 mark	06	CO3

Q.2 (b)	Why Delta Modulation is used in digital communication? How Modulator and Demodulator works in order to perform the Delta Modulation. **Answer:** Use of Delta Modulation - 1 marks Diagram of Modulator - 1 marks Working of Modulator - 2 marks Diagram of Demodulator - 1 marks Working of Demodulator - 1 marks	06	CO1
Q.3 (a)	An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. (i) Find the subnet mask. (ii) Find the number of addresses in each subnet. (iii) Find the first and last host addresses in subnet 1. (iv) Find the first and last host addresses in subnet 32. (v) Find broadcast address of the subnet 3 and subnet 6. (vi) Find network interface address of subnet 20 and subnet 24. **Answer:** (1 marks for each correct answer)* 6 - 6 marks	06	CO4
Q.3 (b)	Differentiate between Bus, Star and Ring Topology.(Any 6 Points) **Answer:** (1 mark for each correct Difference) * 6 - 6 marks	06	CO3
Q.4 (a)	What is Count-to-Infinity Problem? How Link State Routing overcomes this problem? **Answer:** Count-to-infinity Problem - 3 Marks Justification of LSR solving Count-to-infinity problem - 3 Marks	06	CO4
Q.4 (b)	Draw and explain TCP header format. **Answer:** TCP Header diagram - 2 Marks (0.5 marks for explanation of each header field)*8 - 4 Marks	06	CO3
Q.5 (a)	How does Remote Logging works? Justify the need of NVT in Remote Logging. **Answer:** Diagram of Remote Logging - 1 mark Working of Remote Logging - 4 mark Justification of NVT - 1 marks	06	CO4
	OR		
	What is the need of MIME in E-mail service? Draw and discuss MIME Header. **Answer:** Need of MIME in E-mail - 2.5 marks Header Format - 1 mark (0.5 mark for each field in the MIME header) * 5 - 2.5 marks	06	CO4
Q.5 (b)	Differentiate between OSPF and BGP. (Any 6 Points) **Answer:** (1 mark for each correct Difference) * 6 - 6 marks	06	CO4
	OR		
	Differentiate between TCP and UDP.(Any 6 Points) **Answer:** (1 mark for each correct Difference) * 6 - 6 marks	06	CO4