BHARATIYA VIDYA BHAVAN'S

SARDAR PATEL INSTITUTE OF TECHNOLOGY

MUNSHI NAGAR, ANDHERI (WEST), MUMBAI – 400 058, India

(Autonomous College Affiliated to University of Mumbai)

Mid Semester Examination

Max. Marks: 20 Duration: 1 hr

Class: FYMCA Semester: II

Course Code: MCA22 Date: 3/3/2020

Subject: Computer Networks Time: 12.00 to 1.00 p.m

Instructions: (1) All questions are compulsory.

(2) Use of scientific calculator is allowed.

(3) Assume any necessary data but justify the same.

Q. No.	Questions	Max. Mks	CO_BL_PI
Q. 1	A Periodic composite signal is made up of four frequency which are 90 Hz, and 100 Hz. Signal power is 150W and noise is 10 W. Signal is represented 8 levels. answer the following : (i) Find Bandwidth (iI) Find SNR(dB) (iii) Calculate Nyquist Bit rate (iv) Calculate Shannon capacity (v) If When bandwidth is increased ,what is the effect on channel capacity ?	5	1_4_2.3.1
Q. 2	A small office has 7 members of the staff, they want to deploy machines and a centralized Server ,They would like to connect a printer to the network. Suggest and Elaborate suitable diagrammatic Networking Topology with its function and classify and explain different internetworking devices in detail that will be used.	6	2_4_4.1.3

Q. 3	OSI Reference Model has two additional layers. List the layers and what functions do they provide ?	4	3_4_2.1.2
Q. 4	Following characters encoding is used in Data Link Layer A: 01000111 B: 11100011 FLAG :01111110 ESC : 11100000 .Simplify the bit sequence transmitted (in binary) for four character A B ESC FLAG using following framing methods : (i) Byte count (ii)Starting and ending flag bytes (iii)Bit stuffing (iv)Byte stuffing with special 8 bit pattern 01111110 (v)Which of the above techniques causes less overhead? Justify OR For the message 1 0 1 1 1 0 0 0 1 0 0 1 ,suppose the received message is 1 0 1 0 **1** 1 0 0 1 **1** 1 0 0 1 **0** through VRC and through LRC is 1 0 1 0 1 0 0 1 1 0 0 1 **1 0 1 0** Which method of the above gives the correct result .i.e where the bit has changed? Justify	5	3_4_4.3.4 3_4_2.2.4