Mid Semester Examination

Synoptic

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 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 * (1 mark each question) (i) Find Bandwidth = higher –lower =100- 90 =10Hz (iI)Find SNR(dB) = 10logPs/Pw = 11.76 (iii)Calculate Nyquist Bit rate = 2 * bandwidth * log2 (L) = 60bps (iv) Calculate Shannon capacity = bandwidth * log2(1+SNR) =36.7 bps (v) If When bandwidth is increased ,what is the effect on channel capacity ? With the increase in bandwidth the channel capacity also increases.	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 functions and classify and explain different internetworking devices in detail that will be used Diagram (1mk) Explanation about the topology (2mks) Explanation about the Internetworking devices(2mks)	6	2_4_4.1.3

Q. 3	OSI Reference Model has two additional layers. List the layers and what functions do they provide? List layers (1 mark) –Presentation and Session layer Functions of each (2mks each)	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 : * (1 mark each question) (i) Byte count 00000101 given data (ii)Starting and ending flag bytes 01111110 given data 01111110 (iii)Bit stuffing it will take place after 5 consecutive 1's (iv)Byte stuffing with special 8 bit pattern 01111110 01111110 given data 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 It can be detected through VRC but not LRC. (justify through both methods 5 marks)	5	3_4_4.3.4 3_4_2.2.4