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Course Code	18CS46
Course Name	DATA COMMUNICATION
Assessment Number	2
Question Paper Type	REGULAR
Questions to attempt	39

Question Number	Module	Topic	Questions	Max Marks	Course Outcome Number	Solution
1	2	PCM	Arrange the following activities in the order followed in Pulse Code Modulation a) Quantizing b) Encoding c) Sampling A) a,b,c B)b,a,c C)c,b,a	1	CO2	C
2	2	PCM	According to Nyquist theorem , the sampling rate must be at least _____ times the highest frequency contained in the signal. A)1/2 B) 2 C)None of these	1	CO2	2
3	2	PCM	Human voice contains frequencies from 0 to 4 kHz. What is the bit rate assuming 8 bits per sample. A) 8 kbps B) 32 kbps C) 64 kbps	2	CO2	C
4	2	PCM	The techniques to reduce quantization errors are ____. A) Companding B) Expanding C) Both of these D) None of these	1	CO2	C
5	2	PCM	Which of the following statements is true A) Quantization error in delta modulation is less than pulse code modulation B) Quantization error in pulse code modulation is less than delta modulation C) Quantization error in pulse code modulation is equal to that of delta modulation	1	CO2	A

6	2	Digital to Analog Conversion	The relationship between N (bit rate) and S (baud rate) is A) S = N/r B) N=S/r C) None of these	1	CO2	A
7	2	Digital to Analog Conversion	What is the bandwidth required for the following cases if we need to send 6000 bps with d = 1 and r = 1 using Amplitude Shift Keying. A) 6 kHz B) 12 kHz C) 18 kHz D) None of these	2	CO2	B
8	2	Digital to Analog Conversion	What is the bandwidth required for the following cases if we need to send 6000 bps with d = 1 and r = 1 using Frequency Shift Keying with 2Df = 4 kHz. A) 10 kHz B) 16 kHz C) 22 kHz	2	CO2	B
9	2	Digital to Analog Conversion	Phase Shift keying has better resistance to noise when compared to Amplitude Shift Keying. A) True B) False	1	CO2	A
10	2	Digital to Analog Conversion	Quadrature Amplitude Modulation combines B) Frequency Shift Keying and Phase Shift Keying C) Phase Shift Keying and Ampliture Shift Keying A) Amplitude Shift Keying and Frequency Shift Keying	1	CO2	C
11	2	Digital to Analog Conversion	A ____ diagram is a representation of amplitude and phase of a signal element particularly when we are using two carriers, one in phase and one in quadrature. A) constellation diagram B) scatter diagram C) None of these	1	CO2	A
12	2	Digital to Analog Conversion	Find the bandwidth for a signal transmitting at 12 Mbps for Quadrature Phase Shift Keying with d = 0. A)6 MHz B) 12 MHz C) 18 Mhz	2	CO2	A
13	3	Bandwidth Utilization	Frequency division multiplexing is designed for_____ signals A) analog B) digital C) None of these	1	CO2	A
14	3	Bandwidth Utilization	Time division multiplexing is designed for _____ signals. A) analog B) digital C) None of these	1	CO2	B

15	3	Bandwidth Utilization	Five channels, each with a 100 kHz bandwidth are to be multiplexed together. What is the minimum bandwidth of the link if there is a need for a guard band of 10kHz between the channels to prevent interference. A) 540 kHz B) 550 kHz C) 560 kHz	1	CO2	A
16	3	Bandwidth Utilization	A) We need to use synchronous TDM and combine 20 digital sources, each of 200 kbps. Each output slot carries 2 bit from each digital source. One extra bit is added to each frame for frame synchronization. What is the size of an output frame in bits? A) 21 B) 41 C) 61	2	CO2	B
17	3	Bandwidth Utilization	With reference to question number A, What is the output frame rate? A) 200000 frames per second B) 200 frames per second C) 20 frames per second	2	CO2	B
18	3	Bandwidth Utilization	With reference to question number A, what is the duration of an output frame? A) 10.25 microsecond B) 10.05 microsecond C) 9.85 microsecond	2	CO2	A
19	3	Bandwidth Utilization	In synchronous TDM, if source does not have data to send, the corresponding slot in the output goes empty. A) True B) False	1	CO2	A
20	3	Bandwidth Utilization	In synchronous TDM, if the data rates of the sources are not integer multiples of each other, technique known as ____ is used. A) multi-level multiplexing B) multi-slot allocation C) pulse stuffing	1	CO2	C
21	3	Bandwidth Utilization	Multiplexing is used to improve the security of communication. A) True B) False	1	CO2	B
22	3	Circuit Switched Networks and Packet Switching	B) With reference to the switching given in the figure 1, find the output port and output VCI for packets with the following input port and input VCI addresses of 3,78 A) 2,43 B) 2,70 C) 3,11	1	CO2	B

23	3	Circuit Switched Networks and Packet Switching	With reference to question number B, Find the output port and output VCI for packets with the following input port and input VCI addresses of 2,92 A) 2,43 B) 1,45 C) 4,41	1	CO2	B
24	3	Circuit Switched Networks and Packet Switching	With reference to question number B, Find the output port and output VCI for packets with the following input port and input VCI addresses of 4,56 A) 3,11 B) 3,22 C) 4,41	1	CO2	A
25	3	Circuit Switched Networks and Packet Switching	With reference to question number B, Find the output port and output VCI for packets with the following input port and input VCI addresses of 2,71 A) 3,22 B) 4,41 C) 1,45	1	CO2	B
26	3	Error Detection Correctio n	A simple parity check code C(5,4) cannot detect _____ bit errors. A) single B) two C) three	2	CO2	B
27	3	Bandwidt h Utilizatio n	Spread Spectrum is used to improve the bandwidth utilization of a channel. A) True B) False	1	CO2	B
28	3	Circuit Switched Networks and Packet Switching	Circuit Switching is implemented at _____ layer. A) Physical B) Data link C) Network	1	CO2	A
29	3	Circuit Switched Networks and Packet Switching	In datagram switching, destination address in a packet do not change during its journey through the network. A) True B) False	1	CO2	A
30	3	Circuit Switched Networks and Packet Switching	Virtual Circuit Switching uses global as well as local addresses. A) True B) False	1	CO2	A
31	3	Circuit Switched Networks and Packet Switching	Choose the correct statement A) In datagram switched networks, data is transferred continuously B) In circuit switched networks, data is transferred continuously C) Neither of these	1	CO2	B

32	3	Circuit Switched Networks and Packet Switching	Choose the correct statement A) In datagram switched networks, data can arrive at the receiver in incorrect order B) In circuit switched networks, data can arrive at the receiver in incorrect order C) Neither of these	1	CO2	A
33	3	Circuit Switched Networks and Packet Switching	_____ switching is also called connectionless switching A) Datagram B) Circuit C) Virtual Circuit	1	CO2	A
34	3	Circuit Switched Networks and Packet Switching	In virtual circuit switching, addresses carried in the packets change during its journey to destination A) True B) False	1	CO2	A
35	3	Circuit Switched Networks and Packet Switching	Resource reservation is done in datagram switching A) True B) False	1	CO2	B
36	3	Error Detection Correctio n	Find the number of bits affected during a data transmission of 1 Mbps due to a noise of lasting 0.01 s A) 100 B) 1000 C) 10000	2	CO2	C
37	3	Error Detection Correctio n	The hamming distance between the codewords 01011 and 10101 A) 3 B) 4 C) 2	2	CO2	B
38	3	Error Detection Correctio n	A block code has a minimum hamming distance of 3. Its error detecting capability and error correcting capability is _____ A) 2 and 1 B) 1 and 2 C) 2 and 0	2	CO2	A
39	3	Error Detection Correctio n	Both addition and subtraction in modulo 2 arithmetic can be implemented using XOR . A) True B) False	1	CO2	A