

# University of Mumbai

## Examination 2020 under cluster 4 (PCE)

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Rev2016

Examination: Third Year Semester V

Course Code: ECC502 and Course Name: Digital communication

Time: 1 hour

Max. Marks: 50

Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	What is the area under a conditional Cumulative density function?
Option A:	0
Option B:	Infinity
Option C:	1
Option D:	Changes with CDF
Q2.	A variable that can assume any value between two given points is called _____
Option A:	Continuous random variable
Option B:	Discrete random variable
Option C:	Irregular random variable
Option D:	Uncertain random variable
Q3.	When Information increases then
Option A:	Probability also increases
Option B:	Probability decreases
Option C:	Probability remains constant
Option D:	Probability has no relation with information
Q4.	The channel capacity is
Option A:	The amplitude of the modulated signal
Option B:	Information contained in a signal
Option C:	The maximum information transmitted by one symbol over the channel
Option D:	Rate of loss of Information
Q5.	The divisor in a cyclic
Option A:	Degree
Option B:	Generator
Option C:	Redundancy
Option D:	Syndrome
Q6.	What is the value of leading coefficient of a monic polynomial?
Option A:	0.5
Option B:	1
Option C:	4
Option D:	16
Q7.	According to linearity property, the ----- of two code words in a cyclic code is also a valid code word.
Option A:	Sum

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Option B:	Difference
Option C:	Product
Option D:	Division
Q8.	Which of the following indicates the number of input bits that the present output is depends upon?
Option A:	Information rate
Option B:	Constraint length
Option C:	Code length
Option D:	Code window
Q9.	Bandwidth of QASK System
Option A:	$2f_b/N$
Option B:	$3f_b/N$
Option C:	$f_b/N$
Option D:	$4f_b/N$
Q10.	The bit rate is _____ than band rate in QPSK
Option A:	Half
Option B:	Double
Option C:	Same
Option D:	Thrice
Q11.	Which waveform scheme introduces bandwidth compression?
Option A:	Duobinary
Option B:	Manchester coding
Option C:	Phase encoded waveform
Option D:	Multilevel codes
Q12.	Which method should be implemented for reducing bandwidth?
Option A:	Multilevel codes
Option B:	Multilevel signalling
Option C:	PAM
Option D:	PDM
Q13.	A system is said to be better if its probability of error is
Option A:	Minimum
Option B:	Maximum
Option C:	Infinite
Option D:	Finite
Q14.	Variance of a constant 'a' is _____
Option A:	0
Option B:	a
Option C:	$a/2$
Option D:	1
Q15.	For 'M' equally likely messages, the average amount of information 'H' is

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Option A:	$H = \log_{10}(M)$
Option B:	$H = \log_2(M)$
Option C:	$H = \log_{10}(M+1)$
Option D:	$H = 2 \log_{10}(M)$
Q16.	Analog to digital conversion includes
Option A:	Only sampling
Option B:	Only quantization
Option C:	Sampling & quantization
Option D:	Decoding
Q17.	For a $1/2$ rate, $K=3$ convolution code the number of input and output bits are?
Option A:	1 input bit and 3 output bits
Option B:	1 input bit and 2 output bits
Option C:	2 input bits and 3 output bits
Option D:	3 input bits and 2 output bits
Q18.	Number of possible symbols in ASK
Option A:	$N=1$
Option B:	$N=2$
Option C:	$N=3$
Option D:	$N=4$
Q19.	For a specified average transmitted power, the system that gives the lowest probability of error among the following is
Option A:	Non coherent FSK system
Option B:	Coherent FSK system
Option C:	PSK system
Option D:	Coherent ASK system
Q20.	For the same bit error and channel noise the probability of error of QPSK is the same as that of
Option A:	BPSK
Option B:	coherent BFSK
Option C:	Non coherent BFSK
Option D:	DPSK
Q21.	If the channel is bandlimited to 6 KHz and signal to noise ratio is 16, What would be the capacity of channel
Option A:	15.15 Kbps
Option B:	24.52 Kbps
Option C:	30.12 Kbps
Option D:	52.18 Kbps
Q22.	While decoding the cyclic code, if the received code word is similar as transmitted code word, then $r(x) \text{ mod } g(x)$ is equal to
Option A:	Zero
Option B:	Unity

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Option C:	Infinity
Option D:	None of the above
Q23.	If the bit rate for an ASK signal is 1200 bps, the baud rate is
Option A:	1200
Option B:	600
Option C:	100
Option D:	800
Q24.	If the baud rate is 400 for a QPSK signal, the bit rate is
Option A:	100bps
Option B:	800bps
Option C:	200bps
Option D:	400bps
Q25.	Transversal equalizer uses tapped delay line to -----
Option A:	Reduce ISI
Option B:	Reduce BER
Option C:	Increase bit rate
Option D:	Increase bandwidth

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	C
Q2.	A
Q3.	B
Q4	C
Q5	B
Q6	B
Q7	A
Q8.	B
Q9.	A
Q10.	B
Q11.	D
Q12.	A
Q13.	A
Q14.	A
Q15.	B
Q16.	C
Q17.	B
Q18.	A
Q19.	C
Q20.	A
Q21.	B
Q22.	A
Q23.	A
Q24.	B
Q25.	A

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