University of Mumbai

Examination 2020 under cluster 7(Lead College: SSJCOE)

Examinations Commencing from 7th January 2021 to 20th January 2021

Program: **Information Technology**

Curriculum Scheme: Rev2019

Examination: SE SemesterIII

Course Code: ITC304 and Course Name: Principle of Communication

Time: 2 hour Max. Marks: 80

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Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	The function of the transmitter block in the communication system is
Option A:	To convert electrical equivalent of the information in a suitable form
Option B:	To convert the voice signals in electrical signals
Option C:	To demodulate the signals
Option D:	To convert the signal from analog to digital
2.	Which frequency band belongs to the ultra high frequencies (UHF)
Option A:	30Hz – 300 Hz
Option B:	3kHz – 30kHz
Option C:	300MHz – 3GHz
Option D:	30 – 300 GHz
3.	Which of the following communication system is truly bidirectional
Option A:	Full duplex system
Option B:	Half duplex system
Option C:	Simplex system
Option D:	Modern communication system
4.	Which among the following is not external noise
Option A:	Shot noise
Option B:	Atmospheric noise
Option C:	Extraterrestrial noise
Option D:	Man made noise
5.	If an amplifier has a noise figure of 3 dB then the equivalent noise temperature is
Option A:	300° K
Option B:	200°K
Option C:	100° K
Option D:	50° K
6.	The average thermal noise power is given by
Option A:	Pn = kTB watts
Option B:	Pn = P/S

Option C:	Pn = 2(I+2I)
Option D:	Pn = Vn/R
7.	The modulation index of amplitude modulation is given as
Option A:	Ec/Em
Option B:	Ec+Em
Option C:	Em/Ec
Option D:	Ec-Em
8.	In an AM wave useful power is carrier by …….
Option A:	Carrier
Option B:	Sidebands
Option C:	Both sideband and carrier
Option D:	Noise
9.	Superhertodyne principle refers to
Option A:	Using a large number of amplifier stages
Option B:	Using a push-pull circuit
Option C:	Obtaining lower fixed intermediate frequency
Option D:	Amplifying
10.	How much will be the depth of modulation if the carrier amplitude varies between 4 volts and 1 volt.
Option A:	0.6
Option B:	1
Option C:	0
Option D:	1.6
11.	The amount of frequency deviation in FM signal depends on
Option A:	Amplitude of the modulating signal
Option B:	Carrier frequency
Option C:	Modulating frequency
Option D:	Transmitter amplifier
12.	Sensitivity is defined as
Option A:	Ability of receiver to amplify weak signals
Option B:	Ability to reject unwanted signals
Option C:	Ability to convert incoming signal into Image Frequency
Option D:	Ability to reject noise
13.	The spectrum of the sampled signal may be obtained without overlapping only if
Option A:	$f_s < 2f_m$
Option B:	$f_s > f_m$
Option C:	$f_s < f_m$
Option D:	$f_s \geq 2f_m$
14.	Which of the following is false with respect to pulse modulation?
Option A:	Less power consumption
Option B:	Low noise

Option C:	Degraded signal can be regenerated
Option D:	Can transmit analog as well as digital waves
15.	In PWM signal reception, the Schmitt trigger circuit is used
Option A:	To remove noise
Option B:	To produce ramp signal
Option C:	For synchronization
Option D:	To increase bandwidth
16.	The sampling technique having the minimum noise interference is
Option A:	Instantaneous sampling
Option B:	Natural sampling
Option C:	Flat top sampling
Option D:	Aliasing
17.	In frequency division multiplexing each signal to be transmitted modulates a _____ carrier.
Option A:	Single
Option B:	Different
Option C:	Two carriers
Option D:	Four carriers
18.	Which of the following is not an advantage of time division multiplexing?
Option A:	Signal interference is less
Option B:	More flexible
Option C:	Full channel can be used for every signal
Option D:	Fast data transfer
19.	Electromagnetic waves are represented in which of the following format?
Option A:	Longitudinal waves
Option B:	Transverse waves
Option C:	Sinusoidal waves
Option D:	Surface waves
20.	The broadcast signals received at low frequencies during day-time are due to
Option A:	Ground wave
Option B:	Space wave
Option C:	Sky wave
Option D:	Tropospheric wave

Q2	**Solve any Two Questions out of Three 10 marks each**
A	Explain the following terms: 1) Signal to noise ratio. 2)Noise factor

	3) Noise figure. Also explain how noise figure is related to signal to noise ratio.
B	What is amplitude modulation and derive the mathematical expression of AM signal.
C	Differentiate between PAM, PWM and PPM and explain the generation and detection of Pulse amplitude modulated signal.
Q3.	**Solve any Two Questions out of Three 10 marks each**
A	With a neat block diagram explain the method of FM generation using Varactor diode.
B	Explain ground wave propagation. Compare between sky wave, ground wave and space wave propagation.
C	List the different types of multiplexing and explain FDM transmitter and receiver.

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