Annexure A

University of Mumbai

Examination Second Half 2022 under cluster _7_ (Lead College: BVCOE)

Examinations Commencing from Nov 2021 to May 2022
Program: **IT**
Curriculum Scheme: Rev2019 C Scheme
Examination: SE Semester III
Course Code: ITC304 and Course Name: Principle of Communication

Time: 2-hour 30 minutes 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.	What is the necessary and sufficient condition for a sum of a periodic continuous time signal to be periodic?
Option A:	Ratio of period of the first signal to period of other signals should be constant
Option B:	Ratio of period of the first signal to period of other signals should be finite
Option C:	Ratio of period of the first signal to period of other signals should be real
Option D:	Ratio of period of first signal to period of other signal should be rational
2.	Find the Fourier transform of the unit step function.
Option A:	$\pi\delta(\omega) + 1/\omega$
Option B:	$\pi\delta(\omega) + 1/j\omega$
Option C:	$\pi\delta(\omega) - 1/j\omega$
Option D:	$\delta(\omega) + 1/j\omega$
3.	In an AM wave, the majority of the power is in …………….
Option A:	Carrier
Option B:	Lower sideband
Option C:	upper sideband
Option D:	Single sideband
4.	Discrete time signal is derived from continuous time signal by _____________ process.
Option A:	Addition
Option B:	Multiplying
Option C:	Sampling
Option D:	Addition and multiplication
5.	Modulation index in frequency modulation can be determined by using _________.
Option A:	Ac/fm
Option B:	δf / fm
Option C:	Am/fm
Option D:	Am/Ac
6.	The process of converting the analog sample into discrete form is called
Option A:	Multiplexing
Option B:	Modulation
Option C:	Quantization
Option D:	Sampling
7.	The sequence of operations in which PCM is done which is _______
Option A:	Sampling, quantizing, encoding
Option B:	Quantizing, encoding, sampling
Option C:	Quantizing, sampling, encoding
Option D:	Encoding, Sampling, Quantizing
8.	The noise due to random behavior of charge carriers is
Option A:	Partition noise

Option B:	Industrial noise
Option C:	Flicker noise
Option D:	Shot noise
9.	In_____ the amplitude of the carrier signal is varied based on the information in a digital signal.
Option A:	ASK
Option B:	PSK
Option C:	FSK
Option D:	QAM
10.	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

Q2 (20 Marks Each)	Solve any Two Questions out of Three 10 marks each
A	Draw and Explain Electromagnetic Spectrum and list different applications.
B	Explain in detail generation of DSB using Balanced modulator.
C	Compare PAM, PWM and PPM generation and Degeneration.

Q3 (20 Marks Each)	Solve any Two Questions out of Three 10 marks each
A	Define Noise parameters: Signal to noise ratio, Noise factor, Noise figure, Friss formula and Equivalent noise temperature.
B	Explain different characteristics of super heterodyne receiver.
C	Explain Sampling theorem for low pass and band pass signals.

Q4. (20 Marks Each)	Solve any Two Questions out of Three 10 marks each
A	Explain Pre-emphasis and de-emphasis in FM.
B	Explain Time Division Multiplexing and Frequency Division Multiplexing along with its applications.
C	Compare ground wave, sky wave and space wave tropospheric scatter propagation.