Program: **Information Technology**
Curriculum Scheme: Rev2019
Examination: SE Semester III
Course Code: **ITC 304** and Course Name: **Principle of Communication**
Time: 2 hour 30 minutes   Max. Marks: 80

Q1.	Choose the correct option for the following questions. All the questions are compulsory and carry equal marks (20 Marks)
1.	The highest frequency amongst microwaves, infrared, visible light, ultraviolet is
Option A:	microwaves
Option B:	infrared
Option C:	ultraviolet
Option D:	visible light
2.	For Fourier Transform to exist, choose which condition needs to be satisfied
Option A:	There must be infinite number of discontinuities in the signal
Option B:	There must be finite number of discontinuities in the signal
Option C:	There must be infinite number of maxima in the signal
Option D:	There must be infinite number of minima in the signal
3.	In super heterodyne receiver, the frequency of local oscillator is
Option A:	higher than that of incoming signal
Option B:	equal to that of incoming signal
Option C:	less than incoming signal
Option D:	half of the incoming signal
4.	A modulating signal having frequency 200 Hz is used to amplitude modulate a carrier signal 2KHz.Calculate the Bandwidth.
Option A:	200 Hz
Option B:	1 KHz
Option C:	400 Hz
Option D:	2 KHz
5.	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
6.	What statement is FALSE about TDM?
Option A:	The time domain is divided into several recurrent slots
Option B:	The time domain is divided into several fixed slots

Option C:	The time domain is divided into several variable length slots
Option D:	Each signal is allotted a time slot on a round-robin basis.
7.	For Polar signaling, which statement is true?
Option A:	A Low in data is represented by a negative pulse
Option B:	A Low in data is represented by no pulse
Option C:	A Low in data is represented by a positive pulse
Option D:	A High in data is represented by a negative pulse
8.	The guard bands are used in FDM to
Option A:	save bandwidth
Option B:	prevent overlapping of signals
Option C:	combine the modulated signals together
Option D:	modulate two different carriers.
9.	In Pulse Width Modulation (PWM), generation is with the help of
Option A:	Integrator and Hold circuit
Option B:	Monostable multivibrator and comparator
Option C:	Sawtooth generator and comparator
Option D:	Sawtooth generator and monostable multivibrator
10.	Which statement is FALSE about Quantization?
Option A:	Analog signals are rounded off to approximately equal value
Option B:	There is no information loss in quantization process
Option C:	There is information loss in quantization process
Option D:	More the number of quantization levels better is quantized output

Q2	**Solve any Two Questions out of Three** **10 marks each**
A	What are different sources of noise? Classify & explain Various sources of noise that affect communication.
B	Draw & explain any one method SSBSC signal generation.
C	In AM radio receiver the loaded Q of the antenna circuit at the input to the mixer is 100. If the intermediate frequency is 455KHz, calculate the image frequency and its rejection at 1Mhz.

Q3	**Solve any Two Questions out of Three** **10 marks each**
A	Draw & explain block diagram of analog & digital communication system.
B	Explain PWM generation & degeneration method in detail.

C	a sinusoidal carrier has an amplitude of 10 V & a frequency of 100 KHz. It is amplitude Modulated by a sinusoidal voltage of amplitude 3V & a frequency of 500 Hz. Modulate Voltage is developed across 75 Ω. (i) Write the equation of modulated wave (ii) Determine modulation index (iii) Calculate total average power (iv) Power carried by sidebands (v) Spectrum of modulated wave

Q4	Solve any Two Questions out of Three 10 marks each
A	What do you mean by inter symbol interference & how it is avoided.
B	What is multiplexing in communication system? Explain in brief transmitter and receiver of FDM.
C	Write short note on following a) Ground wave propagation b)Tropospheric scatter propagation