Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2163206 **Date:03/05/2018**

Subject Name:Analog and Digital Communication (ICT)

Time:10:30 AM to 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Write a short note on PCM.	**03**
	(b)	Write a short note on AM with waveforms..	**04**
	(c)	Explain Armstrong method of FM generation with neat diagram.	**07**
Q.2	**(a)**	Explain block diagram of analog communication system.	**03**
	(b)	Write a short note on Pre-emphasis and De-emphasis	**04**
	(c)	List the methods of SSB generation and Explain Phase shift method in detail	**07**
		OR	
	(c)	List advantages of Digital communication over Analog communication.	**07**
Q.3	**(a)**	Give comparison of FM and AM systems	**03**
	(b)	Explain External noise.	**04**
	(c)	Derive Friis's Formula.	**07**
		OR	
Q.3	**(a)**	Write a short note on ASK	**03**
	(b)	Why modulation is required?	**04**
	(c)	A 400W carrier is amplitude modulated to a depth of 100%.calculate the total power in case of VSB technique, if 20% of the other sideband is transmitted along with wanted sideband. How much power saving (in W) is achieved for VSB compared to AM and DSBSC .How much more power (in W) is required compared to SSB?If the depth of modulation is changed to 70% then how much power(in W) is required for transmitting the VSB Wave?	**07**
Q.4	**(a)**	A Carrier Current is 8A but it is increased to 8.93A when it is modulated find: 1. Percentage modulation index 2. Antenna current when modulation index changes to 0.8	**03**
	(b)	Write a short note on Direct Sequence spread spectrum.	**04**
	(c)	Derive power relation for DSB, SSB and VSB.	**07**
		OR	
Q.4	**(a)**	Explain elements of a communication system with diagram	**03**
	(b)	Write a short note Tuned Radio Frequency (TRF) Receiver.	**04**
	(c)	Draw and explain block diagram of the Super heterodyne AM Receiver with necessary waveforms	**07**
Q.5	**(a)**	Explain frequency hopping.	**03**
	(b)	Write a short note on Thermal Noise.	**04**
	(c)	Explain AM Modulation Techniques.	**07**
		OR	
Q.5	**(a)**	Draw the circuit diagram of delayed AGC and explain its operation.	**03**
	(b)	Write a short note on Shot Noise	**04**
	(c)	Write a short note on Noise Temperature.	**07**

****