QPC: RJ18001145 AR - 18 Reg. No. | | | | | | | | | | |

GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, June – 2021

(Sixth Semester)

BEEPC6030 – COMMUNICATION ENGINEERING

(E.E.E)

Time: 2 hrs Maximum: 50 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) (1 x 10 = 10 Marks)

Q.1. Answer ***ALL*** questions		[CO#]	[PO#]
a.	FDM is preferable for transmission of	1	1
	(i) AM (ii) DSB-SC		
	(iii) SSB-SC (iv) FM		
b.	In FM broadcast station, the allowable bandwidth per channel	1	1
	(i) 100khz (ii) 200khz		
	(iii) 15khz (iv) 10khz		
c.	The noise immunity is better in	2	1
	(i) AM (ii) PM		
	(iii) FM (iv) SSB-SC		
d.	For over modulated AM, which method can't be applied for its demodulation?	2	1
	(i) Envelope Detection (ii) Square law detection		
	(iii) Coherent detection (iv) none		
e.	A 100 V carrier is made to vary between 160V and 40 V by the signal. What is the modulation factor ?	2	1
	(i) 0.3 (ii) 0.4		
	(iii) 0.5 (iv) none of the above		
f.	For PM to FM conversion, which block is used.	3	1
	(i) Integrator (ii) Differentiator		
	(iii) Multiplier (iv) Adder		
g.	In AM receiver, which amplifier provides better selection?	3	1
	(i) RF (ii) IF		
	(iii) Audio amplifier (iv) Power amplifier		
h.	If amplitude of modulating signal doubles, what will be the WBFM bandwidth?	3	1
	(i) doubled (ii) halved		
	(iii) squared (iv) none		
i.	The Spectrum of a dc signal is	4	1
	(i) Impulse type (ii) unit step type		
	(iii) ramp type (iv) can't be determined		
j.	For a bandwidth point of view, which modulation scheme is better?	4	1
	(i) PCM (ii)DM		

(iii)FM (iv)PWM

PART – B: (Short Answer Questions) **(2 x 5 = 10 Marks)**

Q.2. Answer ***ALL*** questions		[CO#]	[PO#]
a.	Why high frequency carrier signal is needed for the transmission of low frequency signal ?	1	1
b.	An AM broadcast radio transmitter radiates 10KW of power with depth of modulation is 50%. Calculate how much power is wasted in transmitting the carrier signal.	1	2
c.	A set of two sinusoids at frequencies f_1, f_2 modulate a carrier frequency f_c & the relative amplitudes of those modulating signals are a_1, a_2. The carrier amplitude is unity. Determine the effective modulation index.	2	2
d.	Compare AM with FM.	3	1
e.	What is the difference between analog and digital communication system?	4	1

PART – C: (Long Answer Questions) **(6 x 5 = 30 Marks)**

Answer ***ANY FIVE*** questions		Marks	[CO#]	[PO#]
3.	Explain the generalized communication systems with suitable blocks.	(6)	1	1
4.	Explain briefly about the characteristics of different communication channels	(6)	1	1
5.	A FM signal is given by $Y(t) = \cos(\omega_c t + \sum_{k=1}^{2} \beta_k \cos(k\omega_o t))$, where ω_o is the modulating signal frequency. Compute the (i) Maximum frequency deviation (ii) Modulation index	(6)	2	2
6.	Explain the Armstrong method for FM generation with suitable block diagram.	(6)	2	1
7.	Explain the generation & demodulation process for PAM. Write its advantages & disadvantages.	(6)	3	1
8.	Explain the sampling theorem with suitable equations. Also discuss the aliasing effects.	(6)	3	1
9.	Explain Delta Modulation techniques with neat diagram. What are its disadvantages & write its remedy?	(6)	4	1
10.	A PCM system uses uniform quantizer with 8-bit encoder. The bit rate of the system is 50Mbps. Determine (i) Message bandwidth (ii) Output SNR (where the modulating signal frequency is 1.5MHz).	(6)	4	2

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