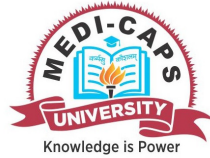


Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2018
EI3CO04 Communication System

Programme: B.Tech.

Branch/Specialisation: EI

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. Demodulation is done in... **1**
 (a) Transmitter (b) Transmitting Antenna
 (c) Radio Receiver (d) Receiving Antenna
- ii. The modulation techniques used to convert analog signal into digital signal are **1**
 (a) Pulse code modulation (b) Delta modulation
 (c) Adaptive delta modulation (d) All of these
- iii. The modulation technique that uses the minimum channel bandwidth and transmitted power is **1**
 (a) FM (b) DSB-SC (c) VSB (d) SSB
- iv. FDM is an analog multiplexing technique used to combines **1**
 (a) Analog signals
 (b) Digital signals
 (c) Both (a) and (b)
 (d) Alternatively passes analog and digital signals
- v. White noise has _____ power spectral density. **1**
 (a) Constant (b) Variable
 (c) Constant & Variable (d) None of these
- vi. Pre emphasis is done before **1**
 (a) Before modulation (b) Before transmission
 (c) Before detection at receiver (d) After detection at receiver
- vii. In PWM signal reception, the Schmitt trigger circuit is used **1**
 (a) To remove noise (b) To produce ramp signal
 (c) For synchronization (d) None of these

- viii. The techniques used for sampling are **1**
 (a) Instantaneous sampling (b) Natural sampling
 (c) Flat top sampling (d) All of these
- ix. FSK reception uses **1**
 (a) Correlation receiver
 (b) PLL
 (c) Correlation receiver and PLL
 (d) None of these
- x. Which has same probability of error? **1**
 (a) BPSK and QPSK (b) BPSK and ASK
 (c) BPSK and PAM (d) BPSK and QAM
- Q.2 i. Define Amplitude modulation. **2**
 ii. Explain Elements of a Communication System. **3**
 iii. What are the types of modulation? **5**
 OR iv. Describe need of modulation. **5**
- Q.3 i. What are the advantages of DSB-SC and SSB-SC? **2**
 ii. Explain the detection of AM signals using envelope detector. **8**
 OR iii. Explain the VSB modulation with frequency response characteristics **8**
- Q.4 i. Define Atmospheric noise and industrial noise? **3**
 ii. Discuss briefly the characteristics of various noises present in a communication system. **7**
 OR iii. Explain pre-emphasis and de-emphasis in FM. **7**
- Q.5 i. What is Nyquist rate? **4**
 ii. Explain delta modulation and adaptive delta modulation. **6**
 OR iii. Differentiate between PAM, PWM & PPM. **6**
- Q.6 Attempt any two:
 i. Explain differential phase-shift keying. **5**
 ii. What is bandwidth efficiency? **5**
 iii. Describe Gram-Schmidt Orthogonalization procedure **5**

P.T.O.

Marking Scheme

EI3CO04 Communication System

Q.1	i.	Demodulation is done in... (c) Radio Receiver	1		
	ii.	The modulation techniques used to convert analog signal into digital signal are (d) All of these	1		
	iii.	The modulation technique that uses the minimum channel bandwidth and transmitted power is (d) SSB	1		
	iv.	FDM is an analog multiplexing technique used to combines (a) Analog Signals	1		
	v.	White noise has _____ power spectral density. (a) Constant	1		
	vi.	Pre emphasis is done before (a) Before modulation.	1		
	vii.	In PWM signal reception, the Schmitt trigger circuit is used (a) To remove noise.	1		
	viii.	The techniques used for sampling are (d) All of these	1		
	ix.	FSK reception uses (c) Correlation receiver & PLL	1		
	x.	Which has same probability of error? (c) BPSK and PAM	1		
Q.2	i.	Define Amplitude modulation. Any 4 points : each point of 0.5 mark (0.5 mark * 4)	2		
	ii.	Explain Elements of a Communication System. Any 3 points : each point of 1 mark (1 mark * 3)	3		
	iii.	What are the types of modulation? Any 5 points : each point of 1 mark (1 mark * 5)	5		
OR	iv.	Describe need of modulation. Any 5 points : each point of 1 mark (1 mark * 5)	5		
Q.3	i.	What are the advantages of DSB-SC and SSB-SC? Any 4 points : each point of 0.5 mark (0.5 mark * 4)	2		
	ii.	Explain the detection of AM signals using envelope detector. Introduction 2 marks Circuit 2 marks Working 2 marks Waveform 2 marks	8		

	OR	iii.		VSB modulation with frequency response characteristics	8
				Introduction 2 marks	
				Circuit 2 marks	
				Waveform 4 marks	
	Q.4	i.		Define Atmospheric noise and industrial noise? Any 3 points : each point of 1 mark (1 mark * 3)	3
		ii.		Discuss briefly the characteristics of various noises present in a communication system Any 7 points : each point of 1 mark (1 mark * 7)	7
	OR	iii.		Explain pre-emphasis and de-emphasis in FM. Introduction 2 marks Circuit 1.5 marks each (1.5 marks *2) 3 marks Working 2 marks	7
	Q.5	i.		What is Nyquist rate? Statement 2 marks Explanation 2 marks	4
		ii.		Explain delta modulation and adaptive delta modulation. Introduction & Bloch Diagram 2 marks each 4 marks Waveform 1 mark each 2 marks	6
	OR	iii.		Differentiate between PAM, PWM & PPM. Any 6 points : each point of 1 mark (1 mark * 6)	6
	Q.6			Attempt any two:	
		i.		Explain differential phase-shift keying. Introduction 2 marks Block diagram 2 marks Waveform 1 mark	5
		ii.		What is bandwidth efficiency? Definition 2 marks Expression 2 marks Example OR description 1 mark	5
		iii.		Describe Gram-Schmidt Orthogonalization procedure Theory 2 marks Derivation 2 marks Conclusion 1 mark	5