BACHELOR OF ENGINEERING IN ELECTRICAL ENGG (EVENING)
EXAMINATION, 2017 (OLD)
(4TH YEAR , 2ND Semester)

SUBJECT: - PRINCIPLES OF COMMUNICATION ENGINEERING AND COMPUTER NETWORKS

Full Marks 100

Time: Three hours

(50 marks for each part)

Use a separate Answer-Script for each part

No. of Questions	PART- I	Marks
	Answer any *three* questions Two marks reserved for neat and well organized answers	
1. (a)	Explain the principle of demodulation of single side-band (SSB) amplitude modulated (AM) signals. Comment specifically on the fact that in coherent demodulation of SSB AM signals, accurate carrier synchronization is even more crucial than that for DSB signals.	7+3
(b)	How does a series diode-bridge perform the task of demodulation of DSB suppressed carrier (SC) AM signal? Elaborate.	6
2. (a)	Elucidate, with the help of relevant sketches and mathematical derivations, the functioning of a power-law modulator circuit for DSB-SC amplitude modulation.	8
(b)	Deduce a relation between the power in a full DSB-AM signal and that in the message (modulating) signal, and show that at least 50% of the transmitted power is carrier power.	8
3. (a)	Explain theoretically, how a frequency modulated signal can be obtained by phase modulation, and vice versa.	6
(b)	Starting from the basic expression, carry out mathematical analysis with suitable approximations to find out any similarity between a narrowband frequency modulated (FM) signal and an AM signal.	10
4. (a)	Bring out clearly the motivations behind opting for digital communication systems over analog communication systems.	8

No. of Questions	PART I	Marks
(b)	Elaborate the underlying theory of amplitude shift keying (ASK) in digital communication. Give well labeled spectral representations in support of your answer.	8
5.	Write short notes on any two of the following.	
	(i) Switching modulator circuit for conventional amplitude modulator.	8+8
	(ii) Frequency shift keying (FSK).	
	(iii) Wideband analog frequency modulation.	
	(iv) Principle of coherent demodulation of DSB-SC AM signals.	
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Ex/EE/5/T/421/2017(Old)

Bachelor of Electrical Engineering (Part Time) 4ᵗʰ Year 2ⁿᵈ Semester Examination 2017(Old)

Principles of Communication Engineering and Computer Networks

Time: Three Hours   Full Marks: 100

(50 marks for each part)
Use a separate Answer-Script for each Part

PART-II

Answer *any three* questions from this part.
Two marks are reserved for neat and well organised answer

1.	a)	Distinguish between flow control and congestion control.	5
	b)	Describe stop and wait flow control mechanism. How the drawbacks of this mechanism can be overcome in sliding window flow control mechanism?	6
	c)	Describe any one mechanism of congestion control.	5
2.	a)	Explain CSMA/ CD protocol in LAN.	5
	b)	Write down the main differences between baseband LAN and broadband LAN. What do you mean by "10BASE5" in context of LAN? Mention different LAN addresses.	2+2+2
	c)	Describe the functions of a LAN Bridge.	5
3.	a)	Explain Manchester and Differential Manchester encoding schemes.	6
	b)	List different types of guided transmission medium. Mention the advantages of optical fiber as transmission medium. What is the difference between CAT3 and CAT5 UTP.	6
	c)	What is checksum and where it is used? Explain with an example.	4
4.	a)	Explain the functions of transport layer and internet layer of TCP/IP architecture model. Name the protocol data unit of TCP and IP layer.	4+2
	b)	Explain flooding technique of routing in packet switched network.	4
	c)	Explain virtual circuit service and datagram service in packet switched network.	6

[Turn over

5.   Write short notes on any two: 8+8

      i)   Public switched Telephone Network   ii) Transmission Impairments

      iii) Wireless Transmission medium   iv) LAN topology