

Ref No: Ex/EE/T/411/2017 (S)

B. ELE ENGG 4TH YEAR 1ST SEMESTER SUPPLEMENTARY EXAMINATION,
2017

**SUBJECT: - PRINCIPLES OF COMMUNICATION ENGINEERING &
COMPUTER NETWORKS**

Time: Three hours

Part-I

**Full Marks 100
(50 marks for each part)✓**

Use a separate Answer-Script for each part

Answer Any Three Questions.

Two Marks reserved for neat and well organized answers.

Q1a. Differentiate between Baseband Communication and Carrier communication. In this context, explain the concept of modulation. What are the possible forms of modulations? Restrict your considerations for analog communication only.

8

Q1b. How can demodulation of conventional DSB AM signals be carried out using rectifier detectors?

5

Q1c. What are the merits and demerits of angle modulation?

3

Q2a. Define auto-correlation function and cross-correlation function mathematically. Explain the physical significances of the two, preferably citing suitable examples.

8

Q2b. What are the sources of possible noises commonly encountered in communication systems? What is White Noise? Give a detail explanation of how it is related to a noisy resistor.

8

Q3a. Explain, under which situation, does non-uniform quantization outperform uniform quantization.

4

Q3b. Prove that the relation of peak signal power to average quantization noise power $(S/N)_q$, assuming that there are no errors due to ISI or channel noise, is given by

$$\left(\frac{S}{N}\right)_q = 3L^2$$

Where, all the symbols carry their usual meanings.

8

Q3c. Differentiate between PWM and PPM justifying their efficacy.

4

Q4a. Differentiate between slow frequency hopping and fast frequency hopping. Justify your claim with the help of suitable graphical representations.

8

Q4b. What do you understand by the term "Handoff"? How, handoff, in a wireless situation is managed either by the network or by the mobile?

8

Q5. Write short notes on **any two**:

8+8

- i) Binary Frequency Shift keying
- ii) Wideband Frequency Modulation
- iii) Geometric representation of signals

**Bachelor of Electrical Engineering 4th Year 1st Semester Supplementary
Examination 2017**

Principles of Communication Engineering and Computer Networks

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(50 marks for each part)

Use a separate Answer-Script for each Part

PART-IIAnswer *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.	4
	b) Describe stop and wait flow control mechanism. How the drawbacks of this mechanism can be overcome in sliding window flow control mechanism?	8
	c) Describe any one mechanism of congestion control.	4
2.	a) Explain CSMA/ CD protocol in LAN.	6
	b) What are the different types of LAN address?	4
	c) Describe infrastructure mode of wireless LAN.	6
3.	a) Explain Manchester and Differential Manchester encoding schemes.	4
	b) What do you understand by content error and flow integrity error? What are the causes of content errors?	8
	c) Describe twisted pair cables used as transmission medium.	4
4.	a) Describe the packet switching concept.	4
	b) Explain flooding and adaptive routing in packet switched network.	6
	c) Explain time division switching in circuit switched network.	6
5.	Write short notes on any two: i) Public switched Telephone Network ii) Internet addressing schemes iii) TCP connection establishment and termination process iv) LAN topology	8+8