



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 101804

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
COMMUNICATION ENGINEERING

Time : 3 Hours]

[Total Marks : 100

1 Attempt any four parts of the following : **5×4=20**

- (a) What is meant by the term amplitude modulation ?
- (b) Define the form modulation index for AM.
- (c) Derive the power relations for single-tone amplitude modulated wave.
- (d) Derive an expression for the transmission efficiency of AM wave.
- (e) Draw the block diagram of a superheterodyne receiver and explain the function of each block.
- (f) How can you classify frequency spectrum of FM wave ?

2 Attempt any four parts of the following : **5×4=20**

- (a) What are the advantage and applications of pulse-code modulation ?
- (b) Explain the sampling theorem.
- (c) Explain generation and demodulation of pulse-position modulation (PPM).
- (d) What is the fundamental difference between pulse modulation, on the one hand, and frequency and amplitude modulation on the other ?
- (e) Explain why quantizing noise could affect small amplitude signals in a PCM system.
- (f) A system has a bandwidth of 4 kHz and a signal-to-noise ratio of 28 dB at the input to the receiver. Calculate :
 - (i) its information carrying capacity
 - (ii) the capacity of the channel if its bandwidth is doubled. while the transmitted signal power remains constant.

3 Attempt any two parts of the following : **10×2=20**

- (a) Draw and explain the working of microwave radio system with its advantage.
- (b) Explain the following :
 - (i) Look angle
 - (ii) Satellite link model
- (c) Explain what is meant by saying that a satellite is "stationary" why are such satellite used for worldwide communications in preference to any kind ?

4 Attempt any two parts of the following : **10×2=20**

- (a) Define and explain information and information theory. What are the aims of information theory ? Why is meaning divorced from information ?
- (b) Explain the following :
 - (i) Information Rate
 - (ii) Channel Capacity
- (c) Describe three kind of error-detection code and explain how they detect data errors.

5 Attempt any two parts of the following : **10×2=20**

- (a) Explain the elements of cellular mobile radio-Handoff frequency management and channel assignment.
 - (b) Explain the significance of basic cellular concept and its operation.
 - (c) Explain the following :
 - (i) GSM
 - (ii) WCDMA
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