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**Question Paper Code : 11270**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Third Semester

Computer Science and Engineering

CS 2204/141304/CS 36/EC 1207/10144 CS 305/080230008 – ANALOG AND  
DIGITAL COMMUNICATION

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Bandwidth efficiency.
2. Distinguish between FM and PM.
3. Draw the block diagram of BFSK transmitter.
4. What is bandwidth need to transmit 4 kHz voice signal using AM?
5. Write one advantage and one disadvantage of delta modulation.
6. What is meant by fading?
7. Mention any two error control codes.
8. Mention the properties of PN sequence.
9. Define sampling theorem.
10. Draw the null modem circuit.

PART B — (5 × 16 = 80 marks)

11. (a) (i) With neat block diagram describe AM transmitter. (8)  
(ii) Derive for carrier power and transmitter power in AM in terms of modulation index. (8)
- Or
- (b) (i) Explain the function of every block of superhetrodyne FM receiver. (10)  
(ii) Differentiate AM and FM. (6)



12. (a) Explain BPSK transmitter and receiver with block diagram and derive an expression for its probability of error.

Or

- (b) Describe the working of QPSK transmitter and receiver. Determine its bandwidth efficiency and compare it with other m-ary PSK schemes.

13. (a) Describe PCM transmitter and receiver with block diagram.

Or

- (b) (i) Define PWM and explain one method of generating PWM. (8)  
(ii) What is ISI and how it can be minimized. (8)

14. (a) Describe the processing steps to convert a  $k$  bit message word to  $n$  bit code word ( $n > k$ ). Introduce a error and demonstrate how a error can be corrected with an example.

Or

- (b) (i) Differentiate between synchronous and asynchronous modem used in data communication. (8)  
(ii) Explain with block diagram how analog signal is transmitted through digital transmission link using digital modulation technique. (8)

15. (a) (i) Explain TDMA and FDMA methods used in wireless communication. (8)  
(ii) Describe any one method of source coding the speech signal for transmitting through wireless communication link. (8)

Or

- (b) (i) Define slow frequency hopping and fast frequency hopping. (6)  
(ii) Explain with block diagram direct sequence spread coherent BPSK transmitter and receiver. (10)