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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (ECE) (2012 to 2017) (Sem.-5)
DIGITAL COMMUNICATION SYSTEMS

Subject Code : BTEC-501

M.Code : 70545

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Write briefly :

- Q1. List advantages of digital communication system.
- Q2. What is Aperture effect?
- Q3. Write the basic difference between Bandpass transmission and Passband transmission.
- Q4. Why do we use the Line coding formats?
- Q5. How Slope over load distortion and Granular noise are avoided in ADM?
- Q6. Draw the power spectrum of QPSK, MSK and BFSK each on same scale.
- Q7. What do you mean by Non-linear quantization?
- Q8. What is the relation between BER and SYMBOL error rate?
- Q9. What do you mean by imperfect bit synchronization?
- Q10. What is CDMA?

SECTION-B

- Q11. Why MSK is called shaped QPSK? For MSK, explain its expression and wave forms for the signal 11000111.
- Q12. What are the draw backs of DM? How are these overcome by ADM?
- Q13. Write a note on probability of error for PSK and Draw wave forms of PSK for the bit stream 101110001111.
- Q14. Explain coherent and non-coherent ASK detector in detail.
- Q15. The probabilities of the five possible outcomes of an experiment are $p_1 = \frac{1}{2}, p_2 = \frac{1}{4}, p_3 = \frac{1}{8}, p_4 = p_5 = \frac{1}{16}$. Find the entropy and information rate if there are 16 outcomes per second.

SECTION-C

- Q16. Apply the Shannon-Fano algorithm to the source with $M = 8$ emitting messages
- $[X] = [A, B, C, D, E, F, G, H]$ having probabilities $[P] = [1/2, 3/20, 3/20, 2/25, 2/25, 1/50, 1/100, 1/100]$
- Q17. Give comparison of DPCM and DM with standard PCM.
- Q18. Write note on **any two** of following :
- a) QPSK Receiver
 - b) FDMA and TDMA
 - c) Lampel-Ziv source coding algorithm with example

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.