Registration No. | | | | | | | | | |

M.E./M.Tech. Degree Examinations, January 2017

First Semester

COMMUNICATION SYSTEMS

CU16102 – ADVANCED DIGITAL COMMUNICATION TECHNIQUES

(Regulation 2016)

QP Code:527338

Time: Three hours **Maximum : 100 marks**

Answer **ALL** questions

PART A - (10 X 2 = 20 Marks)

1. What is coherent receiver? Mention its properties.
2. Define BER. What is its significance?
3. What is the significance of eye pattern in communication channel?
4. Write the features of Viterbi algorithm.
5. List out the applications of matched filter.
6. State Shannon's channel capacity theorem.
7. List the applications of turbo coding.
8. Define convolution code?
9. Define IFFT.
10. What are the advantages and disadvantages of OFDM?

PART B - (5 X16 = 80 Marks)

11. (a) Discuss in detail about the various implementation of the matched filter. **(16)**

(OR)

(b) With a neat block diagram explain the function of DPSK and MPSK Demodulators. **(16)**

12. (a) Analyze the error probability of Viterbi algorithm and Turbo coding. **(16)**

(OR)

(b) (i) What is a transversal equalizer? Explain how it can be implemented. **(8)**

(ii) Explain the concept of LMS equalizer with a neat diagram. **(8)**

13. (a) (i) Describe the architecture and performance of binary block codes with suitable examples. **(12)**

(ii) Draw block diagram of spread spectrum communication. **(4)**

(OR)

(b) With a neat block diagram, explain the functional architecture of coded digital communication system. **(16)**

14. (a) With an example describe the following:

(i) State diagram **(4)**

(ii) Tree diagram **(6)**

(iii) Trellis diagram **(6)**

(OR)

(b) (i) Compute the expression of error probability performance for PBSK. **(8)**

(ii) Explain Viterbi decoding algorithm for convolution code. **(8)**

15. (a) Write the following in detail.

(i) Guard time. **(4)**

(ii) Cyclic extension **(8)**

(iii) Windowing **(4)**

(OR)

(b) Analyze and compare the performance of OFDMA with other modulation techniques. **(16)**