Total No. of Questions :5] *[Total No. of Printed Pages :2*

Roll No.....

EC - 501
B.E. V Semester

Examination, December 2014

Voice and Data Communication

Time : Three Hours

Maximum Marks : 70

Note,. i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit I

1. a) Describe a local subscriber loop.
   b) What is caller ID and when it is used?
   c) What are the functions of a telephone set?
   d) Describe the following signaling messages:
   i) Alerting ii) Supervising
   iii) Controlling iv) Addressing

Or

What is crosstalk? What is meant by near-end crosstalk, far-end crosstalk?

Unit - II

2. a) What are the types of subscribers to the public telephone network?
   b) What is local office telephone exchange?
   c) What is common channel signaling?
   d) What is meant by 557 signaling? Describe the different *557* signaling points.

Or

What is an automated central office switch? Explain the terms circuits, circuit switches and circuit switching.

Unit - III

3. a) Define multiplexing. What are different types of multiplexing?
   b) What is a guard band? When is a guard band used?
   c) What is the difference between WDM and D-WDM?
   d) Describe FDM in detail. What is FDM hierarchy?

Or

Briefly describe the following:
i) Wavelength-division multiplexers / demultiplexers.
ii) Wavelength-division routers.

Unit - IV

4. a) What is the difference between protocols and standards?
   b) Which are the primary standard organizations for data communications?
   c) What are the main transmission impairments?
   d) What is the function of twisting in twisted-pair cables? What is the purpose of cladding in an optical fiber?

Or

What is line coding? Which different techniques are used for line coding?

Unit - V

5. a) Explain the difference between error detection and error-correction.
   b) Differentiate between datagram and virtual circuit packet switching.
   c) What is vertical redundancy checking?
   d) Determine the CRC for the message M(x) using the generator polynomial G(x).
   $G(x) = x^5 + x^4 + x^1 + 1$
   $P(x) = x^7 + x^4 + x^2 + x + 1$

Or

What is Hamming code? Explain the terms codeword, minimum distance, weight with respect to hamming code.