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**[4857]-1089**

**S.E. (Information Technology) (Second Semester)**

**EXAMINATION, 2015**

**FOUNDATION OF COMPUTER NETWORKS**

**(2012 PATTERN)**

**Time : Two Hours**

**Maximum Marks : 50**

**N.B. :—** (i) Answer the Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6,  
Q. 7 or Q. 8.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

1. (a) Write a short note on Analog signals and Digital signals with the help of waveforms. [6]
- (b) Write a short note on Spread Spectrum. [7]

*Or*

2. (a) State and explain the Nyquist theorem and Shannon capacity and solve the following example : [7]

**Example :** Calculate the maximum bit rate for noiseless channel with a Bandwidth of 3000 Hz transmitting a signal with two signal levels.

- (b) Write a short note on transmission modes in detail. [6]

P.T.O.

3. (a) Explain guided media with suitable diagrams. [6]  
(b) Explain TCP/IP protocol suit with layered architecture. [6]

*Or*

4. (a) Compare and contrast circuit switched network with packet switched network. [6]  
(b) Explain different addressing schemes in TCP/IP model. [6]
5. (a) Write a short note on internet checksum. [6]  
(b) What is CRC ? Generate the CRC code for message 1101010101.  
Given generator polynomial  $g(x) = x^4 + x^2 + 1$ . [7]

*Or*

6. (a) Discuss the concept of redundancy in error detection and correction. [7]  
(b) Explain in detail Go-Back-N and Selective Repeat ARQ System. [6]
7. (a) Discuss Fast Ethernet technology in brief. State its specification. [6]  
(b) Explain the HDLC frame formats i.e. I-frame, S-frame, U-frame. [6]

*Or*

8. (a) Explain TDMA and FDMA. [6]  
(b) Explain CSMA and CSMA/CD. Also comment on the efficiency of each. [6]