T.E. (IT) (Semester – I) Examination, 2010
DATA COMMUNICATION AND NETWORKING
(2003 Course)

Time : 3 Hours   Max. Marks : 100

SECTION – I

1. A) Explain different transmission impairments.   8

   B) Explain Shannon's theorem and Nyquist theorem.   8

OR

2. A) Explain hamming code with an illustrated example.   8

   B) Explain CRC. Calculate CRC for the data 1010011110 with divisor polynomial x^3+1.   8

3. A) Explain SONET technology w.r.t. following points. SONET devices, SONET frames and synchronous transport signals.   8

   B) Write short note on :

   a) Frequency division multiplexing

   b) Time division multiplexing.   8

OR

4. A) Write short note on :   8

   a) Circuit switching

   b) Packet switching.

   B) Discuss ADSL. Explain DMT technique used in ADSL.   8

5. A) Explain three Kepler's Laws.   6

   B) Explain various losses in fiber optics.   6

   C) Explain angle of reflection and angle of refraction.   6

OR

6. A) Explain what is a station keeping ?   6

   B) Explain multiple access technique used in satellite communication.   6

   C) Derive an expression of angle of acceptance and numerical aperture.   6

P.T.O.

SECTION – II

7. A) Explain the function of a router and a switch. 6

   B) Explain any 3 topologies with proper diagram. 6

   C) Explain mechanical and electrical specifications of RS-232. 6

OR

8. A) Explain TCP/IP model with protocol examples at each layer. 6

   B) Explain the null modem connection. 6

   C) Explain various types of hubs and bridges. 6

9. A) Explain the function of logical link control. Also explain the PPP stack. 8

   B) What is the necessity of random access techniques ? Also explain CSMA/CD. 8

OR

10. A) Explain HDFC protocol with it's frame format. 8

    B) Explain the necessity of flow control. Also explain Go-Back-n and stop and wait ARQ strategy. 8

11. A) Explain 802.3 ethernet frame format. 8

    B) Explain in detail the to.ken ring concept with the ring management technique. 8

OR

12. A) Explain fast Ethernet technology in detail. 8

    B) Write short note on :

       a) VLAN

       b) FDDI. 8