Reg. No										

MANIPAL INSTITUTE OF TECHNOLOGY
(Constituent Institute of Manipal University)
MANIPAL 576104

FIFTH SEMESTER B.E(COMPUTER SCIENCE) DEGREE EXAMINATION

COMPUTER COMMUNICATION & NETWORKS [CSE 309]

Note: Answer Any FIVE full questions

TIME: 03 HOURS] **[MAX. MARKS: 50**

Q1)

(a) Two networks each provide reliable connection-oriented service.One of them offers a reliable byte stream and the other offers a reliable message stream. Are these identical? If so,why is the distinction made? If not, give an example of how they differ. [05 Marks]

(b) With relevent diagrams distinguish between ISO/OSI and TCP/IP reference models . [05Marks]

Q2)

(a) Suppose that a digital TV picture is to be transmitted from a source that uses a matrix of 480x500 picture elements (pixels), where each pixel can take on one of 32 intensity values. Assume that 30 pictures are sent per second. (This digital source is roughly equivalent to broadcast TV standards that have been adopted.) . Find the source rate R (bps). [05 Marks]

(b) Derive expression for E_b / N_0 in terms of spectral efficiency. [05 Marks]

Q3)

(a) For a 10 bit data stream of 0100110001, draw NRZI,Bipolar-AMI,Differential Manchester Encoding formats. [05 Marks]

(b) For P=110011 and M=11100011, find CRC [05 Marks]

Q4)

(a) A channel has a data rate of 4 kbps and a propagation delay of 20ms. For what range of frame sizes does stop-and - wait give an efficiency of at least 60%. [02 Marks]

(b) Derive an expression for link utilization of go-back-N ARQ, starting from error free expressions. [04 Marks]

(c) Explain working of Statistical Time Division Multiplexer with neat diagram. Also explain the sub frame format of Statistical Time Division Multiplexer. [04 Marks]

Q5)

(a) Explain in detail any two collision-free protocols with necessary diagrams. [04 Marks]

(b) Expalin hidden station problem and exposed state problem in Wireless LANs. [02 Marks]

(c) Write DIX Ethernet and IEEE 802.3 frame format and explain briefly significance of preamble and pad fields. [04 Marks]

Q6)

(a) Explain distance vector routing algorithm with the help of the help of a sample network. Also explain count-to-infinity problem. [06 Marks]

(b) Explain the policies that affect congestion in computer networks. [04 Marks]

****