COURESE CODE: 10B11EC611

MAX. MARKS: 50

COURSE NAME: Telecommunication Networks

COURSE CREDITS: 4

MAX. TIME: 2 Hrs.

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

Q1(a). Draw the ISO-OSI model and discuss the function of each layer in detail. (7)

Q1(b). In figure 1, computer A sends a message to computer D via LAN1, router R1, and LAN2. A process with port address i is running at computer A and a process with port address j is running at computer D. Show the contents of packets and frames at the transport layer and data link layer for each hop. (3)
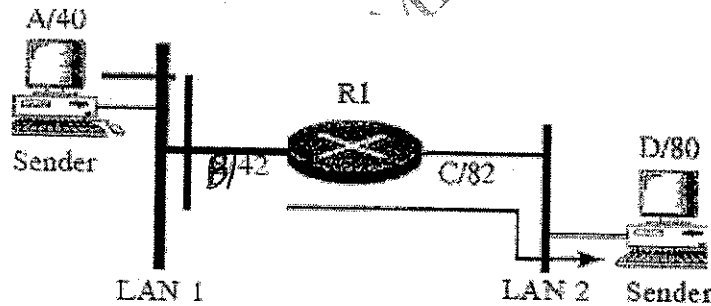

Figure 1

Q2(a). Discuss the working of frequency hopping spread spectrum (FHSS) and direct sequence spread spectrum (DSSS). (2.5+2.5=5)

Q2(b). Discuss in detail the working of synchronous and statistical time division multiplexing (TDM). (2.5+2.5=5)

Q3(a). Differentiate between circuit switching and packet switching. (4)

Q3(b). We need a three-stage space-division switch with N = 120. We use 10 crossbars at the first and third stages and 4 crossbars at the middle stage.

a. Draw the configuration diagram.

b. Calculate the total number of crosspoints.

c. Find the possible number of simultaneous connections.

d. Find the possible number of simultaneous connections if we use one single crossbar (120 * 120). **(1.5*4 = 6)**

Q4. A packet switch has to be designed. With the help of a suitable diagram, discuss the various components of a packet switch in detail. Discuss some switching fabrics. **(10)**

Q5 (a). Given the dataword **1010011110** and the divisor **10111**,

a. Show the generation of the codeword at the sender site.

b. Show the checking of the codeword at the receiver site (assume no error). **(4+3=7)**

Q5 (b). Discuss the working of Checksum method with an example. **(3)**