1st Semester M tech Regular/Back Examination-2015-16
TELECOMMUNICATION SWITCHING AND NETWORKS
Q.CODE-T1235
Time: 3 Hours
Max marks: 70

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

1. a) What is the difference between fully connected and fully connectivity networks? [2 ×10]

    b) What is the significance of (S/N) ratio being -3 dB?

    c) What is a Base line network?

    d) Represent commands in abbreviated dialing to record, cancel and dial a number.

    e) How many subscribers can be supported in bidirectional PAM switching bus, if pulse width of PAM sample is 125 ns?

    f) Does Time Multiplexed Space Switch provide fully availability?

    g) A CSMA/CD bus spans a distance of 1.5 Km. If the data rate is 5 Mbps, What is the minimum frame size?

    h) What is the data rate in 5H0+D channels?

    i) An Antenna has a directive gain of 12 dBi, a radiation efficiency of 90% and a feeder loss of 3 dB. Determine its power gain.

    j) In a Queuing system, define A/B/c/K/m/Z parameters.

2. a) Find out the unavailability of a single processor and dual processor system. Given that MTBF = 3000hrs and MTTR = 5 hrs. Calculate the unavailability for single and dual processor system in 40 years. [5+5]

    b) Compare Single stage and Multi stage Networks.

3. a) With neat diagram explain Phased mode operation of a N×N Time division Time switch. [6+4]

   b) Calculate the number of trunks that can be supported on a time multiplexed space switch, given that (a) 32 channels are multiplexed in each stream (b) control memory access time is 100 ns (c) Bus switching and transfer time is 100 ns per transfer.

4. a) A call processor in an exchange requires 120 ms to service a complete call. What is BHCA rating for the processor? If the exchange is capable of carrying 700 erlangs of traffic, what is the call completion rate? Assume average holding time of 2 minutes. [6+4]

   b) Over a 40 minutes observation interval, 40 subscribers initiate calls. Total duration of calls is 7200 seconds. Calculate the load offered to the network by the subscribers and average subscriber traffic.

5. a) Explain briefly p-persistent CSMA protocol algorithm. [4+6]

   b) Consider a fiber optic token ring with physical length of 100 Km, an operating speed of 100 Mbps and having 100 stations each introducing 1 bit delay. Compute maximum ring utilization if free tokens were to be reintroduced after the bit arrives at the source. Assume a frame length of 1000 bits and stations equally spaced.

6. a) Explain briefly CCITT hierarchical structure and routing methods. [6+4]

   b) Explain the operation of Echo suppressor.

7. a) Compare the parameters relating to Digitized voice and Data traffic. [5+5]

   b) Explain briefly functional grouping in ISDN.

8. Short Notes (any two) [5+5]

   a) Combination switching

   b) Lost call-held system

   c) Token Ring LAN

   d) Centralized SPC