Set No: 1

Code No: V3217/R07

III B.Tech II Semester Regular & Supplementary Examinations, April/May - 2012
TELECOMMUNICATION SWITCHING SYSTEMS
(Electronics and Communications Engineering)

Time: 3 Hours   **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. a) Discuss the major design considerations for touch tone signaling.
   b) Explain the working of cross bar switch with a neat diagram.   [8+8]

2. a) Explain the mechanism of space division switch with neat figures.
   b) A TST network has 15 incoming high ways and 15 outgoing high ways and causes 48 PCM channels. The average occupancy of the incoming channels is 0.8E.
      i). Derive the Equivalence space division network
      ii) Estrmetc the blocking probability   [8+8]

3. a) Mention the major components of Telecommunication network? Explain about subscribes loop systems in detail.
    b) Explain the important recommendations of ITU in numbering.   [8+8]

4. a) Draw the basic schematic of common channel signaling (ccs) and discuss the ccs signaling message formats.
   b) In an exchange the calls arrive at the rate of 1100 calls per hour, with each call holding for duration of 3 minutes. If the demand is serviced by a trunk group of 50 lines. Determine the grade of service.   [8+8]

5. a) Draw the layered architecture of OSI reference model and discuss the services provided by various layer.
    b) Discuss the merits and demerits of Asynchronous protocol.   [8+8]

6. a) Explain the concept of virtual circuit switching.
   b) Write short notes "LAN protocol architecture"   [8+8]

7. a) Explain about ISDN interfaces.
   b) Explain the importance of BSDN.   [8+8]

8. a) Explain how the noise reduction is achieved in full rate ADSL.
   b) Explain different SONET rates.   [8+8]
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Set No: 2

Code No: V3217/R07

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TELECOMMUNICATION SWITCHING SYSTEMS
(Electronics and Communications Engineering)

Time: 3 Hours   **Max Marks: 80**

Answer any FIVE Questions

All Questions carry equal marks

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1. a) Draw the trunking diagram of 10,000 line step by step exchange and explain it working.
    b) How are switching systems classified? Explain a how stored program control is superior to hard wired control.   [8+8]

2. a) Compare Time division space and time division time switching systems.
    b) Find out the implementation complexity of 3072 channel STS Switch implemented for 128 PCM TDM links each having 24 channels. The desired blocking probability is 0.003 for a channel occupancy of 0.3.   [8+8]

3. a) What are the factors that limit the length of subscribes loop? Discuss them.
    b) Explain the basic Topologies of the routing plan in brief.   [8+8]

4. a) Explain the following in brief
            i)   Multi frequency (MF) ac signaling
            ii) Voice frequency (VF) signaling
    b) An exchange is designed to handle 2000 calls during busy hour. One day, the number of calls during busy hour is 2200. What is the resulting Gos (Grade of service)?   [8+8]

5. a) Explain TCP and IP operation with a neat diagram.
    b) Discuss peer to peer client / server networks.   [8+8]

6. Write short notes on the following
        (i) Source Routing Bridge Vs Transparent Bridge
        (ii) WAN Technologies   [8+8]

7. a) Draw the ISDN architecture and explain its working.
    b) Describe the 4 categories of messages in the ISDN network layer.   [8+8]

8. Write short notes on the following
            i)   Intelligent modems
            ii) DOC SIS   [16]

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Set No: 3

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Time: 3 Hours   **Max Marks: 80**

Answer any FIVE Questions
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*****

1. a) Explain the significance of side tone in a telephone conversation.
    b) In a 100 line folded network, how many switching elements are required for non blocking operation.
    c) Draw the trunking diagram of 5005 cross has system.   [4+6+6]

2. a) Design a STS switch for supporting 128 TDM trunks each carrying a primary CCITT channel. The blocking probability should be less than 0.002. The loading is 0.2 E per channel. What is the cost of the switch?
    b) Write short notes on "Three stage combination switching"   [8+8]

3. a) Explain the international telephone numbering format.
    b) Explain the operation of Echo suppressor with a neat circuit diagram.   [8+8]

4. a) Compare In channel and Common channel signaling schemes
    b) Consider a group of 1200 subscribers which generate 800 calls during the busy hour. The average holding time is 3.4 minutes. What is the offered traffic in Erlangs, Cent call seconds (CCS) and calls minute (CM)?   [8+8]

5. a) What the help of a block diagram, Explain Two point data communication circuit.
    b) Explain physical, Electrical and functional characteristics of the RS 232 serial Interface.   [8+8]

6. a) Distinguish between circuit switching and packet switching.
    b) What is internetworking? Explain in how many ways networks differ.   [8+8]

7. a) What are the data link protocols used by ISDN? Explain.
    b) Describe bearer, tele and supplementary services of ISDN.   [8+8]

8. a) Write short notes on 'HFC networks '
    b) Explain the virtual tributaries of SONET.   [8+8]

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Code No: V3217/R07

Set No: 4

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TELECOMMUNICATION SWITCHING SYSTEMS
(Electronics and Communications Engineering)

Time: 3 Hours   **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
*****

1. a) A 1000 line exchange is pairly folded and partly non folded. 40% of subscribers are active during peak hour. If the ratio of local to external traffic is 4:1, estimate the number of trunk lines required.
   b) Explain the principles of crossbar switching with a neat 3x3 carrying bar switching diagram.   [8+8]

2. a) Sketch a TST network to connect m incoming line to m outgoing lives, each carries n PCM Channels. Explain how it works.
   b) In n stage Combination switching, a tradeoff between blocking probability and time delay is possible. Explain   [8+8]

3. a) What are the advantages and disadvantages of echo suppressors?
   b) Explain the concept of alternative routing with necessary equations   [8+8]

4. a) What are the different form of In channel signaling?
   b) During the busy hour, 1200 calls were offered to a group of trunks and 24 calls were lost. The average call duration is 3 minutes.
   Find   (i) Traffic offered
             (ii) Traffic carried
             (iii) the grade of service (Gos) and duration of period of congestion   [8+8]

5. a) Explain the data link Establishment phase in bisync protocol with a neat diagram.
   b) Write short notes on "dedicated client / server networks "   [8+8]

6. a) Write short notes on " Public switched networks"
   b) What is internetworking? Explain the function of gate ways.   [8+8]

7. a) Explain how ISDN is different from IDN
   b) What are the data link protocols used by ISDM? Explain   [8+8]

8. a) Explain how ADSL modulate signal.
   b) Write short notes "CMTS"   [8+8]
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