R07

Set No: 1

Code No: V3217

III B.Tech. II Semester Supplementary Examinations, April/May – 2013

TELECOMMUNICATIONS SWITCHING SYSTEMS
(Electronics Communications Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks
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1. a) Explain the classification of Switching systems
   b) ”The number of crossbars may be reduced by mounting contacts belonging to two subscribers o one bar” can this applied to both horizontal and vertical bars simultaneously? Explain how the scheme would work? [8M+8M]

2. a) Draw and explain the concept of Parallel-in/Serial-out configuration in Time division switching.
   b) Is TS network is non-blocking? Explain. [8M+8M]

3. a) An Ionosphere communication uses a carrier frequency of 10MHz.If the height of the antenna 15m, determine the take off angle.
   b) Explain the terms Transmit reference equivalent and NOSFER reference equivalent system. [8M+8M]

4. a) Determine the difference between In channel and common channel signaling.
   b) Explain the typical CCS signaling message formats. [8M+8M]

5. a) Draw and explain the Data communication Architecture.
   b) A packet switching network has a ‘N’ nodes fully connected. What are the best, the average and the worst case transmit ion path lengths in hops? [8M+8M]

6. a) Explain the terms ALOHA and slotted ALOHA Process.
   b) Draw and explain the ISO-OSI reference model. [8M+8M]

7. a) What ate the factors for developments towards ISDN?
   b) Draw and explain ISDN protocol architecture. [8M+8M]

8. Write short notes on
   a) DSL Technology
   b) SONET Devices [8M+8M]

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III B.Tech. II Semester Supplementary Examinations, April/May – 2013

TELECOMMUNICATIONS SWITCHING SYSTEMS
(Electronics Communications Engineering)

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

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

1. a) Draw and explain the elements of a switching system.
   b) A blocking crossbar switch is to be designed to support 1000 subscribers if the estimated peak traffic is 10 erlangs with average holding times of three minutes per call, estimate the number of cross points required. [8M+8M]

2. a) Calculate the maximum access time that can be permitted the data and control Memories in a TSI switch with single input and single output trunk multiplexing 2500channels.also estimates the cost of the switch and compares it with the single space division switch.
   b) Draw and explain Two-stage TS switch. [8M+8M]

3. a) Explain the comparison of Satellite communication and Terrestrial communication.
   b) Explain the cable hierarchy for subscriber loops. [8M+8M]

4. a) Explain the concept of signaling techniques.
   b) Draw and explain the In channel signaling Architecture of SS7. [8M+8M]

5. a) Explain the frame structures of Data link.
   b) Explain the Routing Strategies of Network layer. [8M+8M]

6. a) Explain the Data Network Standards in briefly.
   b) Draw and explain LAN,WAN and STAR Topologies. [8M+8M]

7. a) What are the ISDN services? Explain in briefly.
   b) Explain the ISDN Standards. [8M+8M]

8. a) Explain the format of STS 1 frame in details.
   b) Explain the device layer in SONET. [8M+8M]

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R07

Set No: 3

III B.Tech. II Semester Supplementary Examinations, April/May – 2013

TELECOMMUNICATIONS SWITCHING SYSTEMS
(Electronics Communications Engineering)

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

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

1. a) Draw and explain 3X3 crossbar switching principal.
   b) Calculate the time taken to dial a 12-digit number in a DTMF telephone when
      (i) The exchange is capable of receiving DTMF signals.
      (ii) The exchange can receive only pulse dialing.
   Compare the result with a rotary telephone dialing.   [8M+8M]

2. a) Draw and explain Basic time division time switching
   b) Explain about complete SPC control software with block diagram.   [8M+8M]

3. a) What are the objectives of numbering plan? How are they classified?
   b) How international and national telephone numbering plan is defined and give telephone number structure?   [8M+8M]

4. a) What are the different forms of in channel signaling? Explain.
   b) Define the following (i) In slot signaling (ii) Out slot signaling (iii) Bit stuffing (iv)Synchronization.   [8M+8M]

5. a) Explain the difference between voice traffic and data traffic.
   b) Draw and explain Circuit switching network.   [8M+8M]

6. a) Draw and explain Metropolitan Area Network.
   b) A CSMA/CD bus spans a distance of 1.5km.if the data rate is 5Mbps, what is the Minimum frame size?   [8M+8M]

7. a) What is the relationship between ISDN layer and OSI layers?
   b) Discuss the function of ISDN physical layer.   [8M+8M]

8. a) Explain how ADSL modulate a signal.
   b) Discuss the virtual tributaries of SONET.   [8M+8M]

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Set No: 4

III B.Tech. II Semester Supplementary Examinations, April/May – 2013

TELECOMMUNICATIONS SWITCHING SYSTEMS
(Electronics Communications Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks
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1. a) A diagonal cross point matrix exchange supports 500 users. On an average 1000 calls are put through every day. If the cross point contacts have a mean life of 10000 breaks and makes, estimate as to how often a cross point may be replaced in this exchange.
   b) Draw and explain Crossbar Exchange organization. [8M+8M]

2. a) Draw and explain three-stage combination switching.
   b) Derive an expression for the blocking probability of a TSTS switch if each stage is individually nonblocking. [8M+8M]

3. a) Explain the Technical specifications for subscriber lines.
   b) Draw and explain the CCITT hierarchical structure. [8M+8M]

4. a) Define blocking probability and explain why it is called as time Congestion.
   b) An exchange is designed to handle 2000 calls during the busy hour. One day, the number of calls during the busy hour is 2200.what is the resulting GOS? [8M+M8]

5. a) Explain the functions and features of data communication network components.
   b) Discuss peer to peer client/server networks. [8M+8M]

6. a) Explain in detail Mesh, Ring, Star and Bus network components,
   b) What are its merits and demerits? [16M]

7. a) Compare HDLC and LAPD network.
   b) Discuss interactive and distributed services of BISDN.
   c) What are the principal and objective of ISDN. [5M+5M+6M]

8. a) How does ADSL modulate a signal?
   b) Explain the terms Virtual tributaries and Higher rate of service. [8M+8M]

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