

III B.Tech I Semester Regular Examinations, November 2006
BASICS OF TELEMATICS
(Electronics & Telematics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain in detail about different varieties of TDM Multiplexers? [16]
2. Explain the Data rate / distance capabilities of different serial interfaces with a neat figure. Justify why RS - 422 has higher performance compared to other serial interfaces? [16]
3. Explain traffic and trunking in automatic telephone systems. If the total number of calls originating in an exchange during busy hours is 6000 and the average holding time of call is 3 minutes. Calculate the traffic flow. [16]
4. Discuss in detail about (1+8) open wire carrier system with a neat diagram? [16]
5. (a) What are the considerations taken during the transmission phase of telephone system?
(b) Discuss the terms of **Central Office, Circuit, Full duplex Communication** with respect to the basic telephone system. [8+8]
6. Explain ISO OSI reference model. Mention the functionalities of any 3 layers in 7 layer ISO OSI reference model. [16]
7. What is the difference between S-ALOHA and ALOHA? What overhead does S-ALOHA incur? What are the disadvantages of R-ALOHA? [16]
8. (a) Compare Link state versus distance vector Routing
(b) What Dijkstra's algorithm and how it is useful in Link-state routing?. Explain with illustration. [6+10]

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1. (a) Write about Modem standards with few examples?
(b) Explain about Simplex, Half Duplex and Full Duplex operations? [6+10]
2. What is an interface? What does the physical interface define? What are the parts of a physical interface standard? Give few examples of interface standards? [16]
3. Discuss in detail about time checking of trunk call periods and trunk line operating methods. [16]
4. Write short notes on:
 - (a) Murihead Gold Wire Relay
 - (b) Capacitive Magnifier. [8+8]
5. How packets, store and forward influences the internet technologies? What are the problems associated with store and forward routing? [16]
6. (a) What are the factors effecting “integrated service in ATM”.
(b) Distinguish the terms:
 - i. Virtual circuit Identifier (VCI)
 - ii. Permanent Virtual circuit (PVC)
 - iii. flow identifier [10+6]
7. Write a short note on any THREE:
 - (a) Centralized access scheme Vs distribute access scheme
 - (b) EAMPS Vs GSM cellular phones
 - (c) Exponential back off of CSMA
 - (d) Problems with Ethernet. [16]
8. (a) Distinguish the terms Routing, Routing Table, routing protocol
(b) What are the requirements of Routing protocols
(c) What are the available choices for Routing protocols to the designers. [6+5+5]

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1. Write in detail about Statistical Multiplexers? [16]
2. Write about X . 21 standard and discuss in detail about X . 21 operations? [16]
3. Explain about various types of AC signaling used in junction and trunk lines.[16]
4. Explain about (1+1) open wire carrier telephone system, with the help of a neat diagram? [16]
5. What are the functions of router? Mention how default routes are maintained and how routing table is computed? Give any two routing mechanisms used in internet? [16]
6. (a) What are the factors effecting “integrated service in ATM”.
(b) Distinguish the terms:
 - i. Virtual circuit Identifier (VCI)
 - ii. Permanent Virtual circuit (PVC)
 - iii. flow identifier [10+6]
7. What are the advantages of CDMA compared to FDMA and TDMA? How the power management problem affects the performance of CDMA? [16]
8. (a) What is multicasting? Distinguish between Unicast & Multicast routing policies?
(b) Explain the multicasting in broadcast LAN [10+6]

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1. (a) Write about Modem standards with few examples?
(b) Explain about Simplex, Half Duplex and Full Duplex operations? [6+10]
2. Discuss in detail about RS - 232 - C interface? [16]
3. Discuss in detail about time checking of trunk call periods and trunk line operating methods. [16]
4. Explain about (1+1) open wire carrier telephone system, with the help of a neat diagram? [16]
5. (a) What are the basic elements of telephone system? Briefly mention the function of each element .
(b) Define the terms **Local loop**, **long-haul**, **back bone** with respect to the telephone system. [8+8]
6. (a) "Statistical multiplexing gain is central to the design of ATM"- explain the above
(b) Assuming a service rate of 64kbps and that voice calls can tolerate a round trip delay of 100ms , how many kilometers can a cell span without using echo cancellers for 32 and 64-byte cells. [8+8]
7. (a) Derive an expression for the normalized throughput of roll-call polling if a station has a packet to send with a probability p , the number of stations N , the mean round-trip delay in accessing a station is R , the medium bandwidth b , a poll/reply message length 1 bytes, and the message length is L bytes.
(b) Compute peak achievable good put for $p=0.012, N=1050, R=0.1s, b=10Mbps, l=10$ bytes, $L=500$ bytes. [10+6]
8. Answer the following
 - (a) Exterior Gate way Protocol
 - (b) OSPF
 - (c) BGP "Boarder Gate way protocol" [6+5+6]
