

IV B.Tech II Semester Regular Examinations, Apr/May 2006
ASYNCHRONOUS TRANSFER MODE
(Electronics & Telematics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain briefly the functions of layers in OSI model.
(b) Define virtual channel, virtual path and virtual path identifier. [8+8]
2. (a) What are the differences between connection oriented and connection less communication.
(b) Compare and contrast packet networks and cell networks. [8+8]
3. (a) Suppose that constant-length packets of size equal to M cells arrive at a source to be carried by an ATM connection and that such packets are separated by exponential random times T. What are the appropriate traffic descriptors for this sequence of cells.
(b) What is the difference between CER and CLR? Why is one negotiated during connection setup and other is not? [8+8]
4. (a) Explain ATM adaptation layer functions.
(b) What are the different service classes in AAL ? and explain them briefly.[8+8]
5. What are QOS parameters as defined by ATM? [16]
6. (a) Define switching element. What is its function?
(b) Explain the different switching elements used in ATM networks? [6+10]
7. (a) Explain ATM network implementation issues?
(b) Explain SDH transmission system? [8+8]
8. What is the impact of ATM on voice connections and how can one get rid of this? [16]

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1. (a) Define functional group and reference points in ISDN
(b) Mention the functions of ISDN functional groupings. [8+8]
2. What are the differences between statistical bit rate (SBR) and variable bit rate (VBR) services? [8+8]
3. (a) Define the following ATM performance parameters.
 - i. cell error ratio
 - ii. cell miss insertion rate.
 - iii. cell loss ratio
 - iv. cell delay variation(b) What is traffic shaping, Explain briefly [4×3=12]
4. (a) Discuss the purpose of all the error checking that is carried at the systems and is the network for an ATM connection that carries cells produced by AAL 5
(b) How much delay is introduced by the two interleaving techniques that can be used is AAL 1 [8+8]
5. Define the objective and functions of ATM traffic and congestion control? [16]
6. (a) What are the main tasks of a ATM switching node?
(b) Explain how the switching is performed in ATM networks? [8+8]
7. Explain the following configurations with neat diagrams w.r.t ATM networks?
 - (a) Star configuration
 - (b) Multiple star configuration
 - (c) Ring configuration [6+5+5]
8. Why do conventional congestion control methods fail for ATM network? Suggest the alternatives? [16]

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1. Write short notes on
 - (a) B-ISDN Messaging services
 - (b) B-ISDN Conversational services
 - (c) ATM Network services [6+5+5]
2. (a) Does the performance of ATM depend strongly on the delay bandwidth product of a wide area network? Explain.
(b) Explain briefly the architecture of ATM Networks? [8+8]
3. (a) Suppose that constant-length packets of size equal to M cells arrive at a source to be carried by an ATM connection and that such packets are separated by exponential random times T. What are the appropriate traffic descriptors for this sequence of cells.
(b) What is the difference between CER and CLR? Why is one negotiated during connection setup and other is not? [8+8]
4. (a) Explain the structure of AAL2
(b) What are the different services offered by AAL2 to service-specific convergence sub layer (SSCS). Explain them briefly. [8+8]
5. List down the different traffic management functions. Explain in brief? [16]
6. With a neat diagram explain the following
 - (a) Extended switching matrix
 - (b) Funnel type network
 - (c) Shuffle exchange network [6+5+5]
7. Explain the following configurations with neat diagrams w.r.t ATM networks?
 - (a) Star configuration
 - (b) Multiple star configuration
 - (c) Ring configuration [6+5+5]
8. Explain Telephony over ATM?

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1. Write short notes on
 - (a) B-ISDN Messaging services
 - (b) B-ISDN Conversational services
 - (c) ATM Network services [6+5+5]
2. (a) What are the different signaling virtual channels available to carry out signaling messages in B-ISDN?
(b) What are the different possibilities for carrying signaling information from the customer to the network and network to customer in signaling virtual channels? Explain them briefly. [8+8]
3. What are QoS performance parameters? Explain them briefly. [16]
4. (a) Compare overhead of AAL $3/4$ with that of AAL 5 for a 64 k byte packet.
(b) Discuss the purpose of all the error checking that is carried at the end systems and in the network for an ATM connection that carries cells produced by AAL $3/4$ [8+8]
5. Draw ABR RM cell format and explain the different fields? [16]
6. (a) Define switching element. What is its function?
(b) Explain the different switching elements used in ATM networks? [6+10]
7. Explain the following configurations with neat diagrams w.r.t ATM networks?
 - (a) Star configuration
 - (b) Multiple star configuration
 - (c) Ring configuration [6+5+5]
8. Which interface is used so that the applications have access to ATM layer to map their QOS requirements onto appropriate ATM parameters? Explain in detail?[16]
