Code No: R05410401 **Set No. 1**

IV B.Tech I Semester Regular Examinations, November 2008
COMPUTER NETWORKS
(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Mechatronics and Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Compare point -to-point channels with broadcast channels along with suitable examples?
   (b) A collection of five routers is to be collected in a point-to-point subnet. Between each pair of routers, the designers may put a high speed line, a medium-speed line, a low-speed line, or no line. If it takes 100ms of computer time to generate and inspect each topology, how long will it take to inspect all of them to find the one that best matches the expected load? [8+8]
2. (a) Television channels are 6MHz wide. How many bits/sec can be sent if four level digital signals are used? Assume a noiseless channel
   (b) How does a virtual circuit differ from a physical circuit? What advantages would a virtual circuit provide? [8+8]
3. (a) Explain one -bit sliding window protocol. Give the advantages and disadvantages of one-bit sliding window protocol?
   (b) Discuss the services provided by the data link layer to the network layer? [8+8]
4. (a) Discuss about MAC addresses?
   (b) Explain about a bit-map collision free protocol? [8+8]
5. What is non- adaptive routing. Explain any two non- adaptive routing algorithms. [16]
6. (a) How connections are setup and released in ATM?
   (b) What is the Format of routing table in ATM? How it helps in routing cells? [8+8]
7. (a) Explain the techniques for controlling packet life time.
   (b) What is forbidden region? Explain how sequences numbers are given to TPDUS. [8+8]
8. (a) With the help of diagram explain the encryption model.
   (b) What is the role of key secrecy and algorithm secrecy in security?
   (c) What are the approaches for cryptanalysis? [8+4+4]

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Code No: R05410401 **Set No. 2**

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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the advantages of having layered architecture? Mention the layers of ISO-OSI reference model?
   (b) What is Internet? Mention some of the applications of Internet? [8+8]
2. (a) Television channels are 6MHz wide. How many bits/sec can be sent if four level digital signals are used? Assume a noiseless channel
   (b) How does a virtual circuit differ from a physical circuit? What advantages would a virtual circuit provide? [8+8]
3. Explain in detail the two data link protocols widely used in the Internet? [16]
4. (a) Discuss about the file key assumptions in case of dynamic channel allocation in LANs and WANs?
   (b) Discuss in detail the working of token bus? [8+8]
5. Define route. Why routing algorithm is required. Routes can be predetermined and then use them when required (or) Routes can be determined when needed and use them immediately. First method is proactive and second method is reactive. Which one is preferred for wired networks? Justify your answer. [16]
6. (a) What is the format of Cell in ATM?
   (b) Compare Permanent V.C. with Switched V.C. in ATM.
   (c) How fixed size cells increases the speed of switching? [6+5+5]
7. (a) What are the different flags in TCP segment? Explain each of them.
   (b) How TCP uses sliding window to achieve flow control? [10+6]
8. (a) What is security? What is network security? What is information security? How network security and information security are related?
   (b) What are the Pros and Cons of providing security?
   (c) Who are the people who cause security problems? [6+5+5]

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Code No: R05410401 **Set No. 3**

IV B.Tech I Semester Regular Examinations, November 2008
COMPUTER NETWORKS
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Define the following terms:
   i. Computer Network
   ii. Peer process
   iii. Protocol
   iv. Interface.
   (b) Discuss various network applications and goals in detail. [8+8]
2. (a) Discuss in detail about Time division switches?
   (b) With a neat diagram explain ISDN system with a PBX for use in large businesses? [8+8]
3. (a) Explain one -bit sliding window protocol. Give the advantages and disadvantages of one-bit sliding window protocol?
   (b) Discuss the services provided by the data link layer to the network layer? [8+8]
4. (a) Explain how the token ring is maintained in detail?
   (b) Does the use of wire center have any influence on the performance of a token ring? [8+8]
5. What is adaptive routing. Is Distance vector routing adaptive algorithm or not. Justify your answer. Explain in detail Distance vector routing. [16]
6. (a) What is the format of Cell in ATM?
   (b) Compare Permanent V.C. with Switched V.C. in ATM.
   (c) How fixed size cells increases the speed of switching? [6+5+5]
7. (a) What is the role played by threshold value in congestion control?
   (b) Assume network with links having abundant bandwidth. What are the pros and cons of using exponential increase and linear increase of congestion window? What happens if bandwidth is limited?
   (c) Explain how flow control is different from congestion control. [2+6+8]
8. (a) In E-mail system, where the E-mail messages are stored and why?

(b) Explain any browser of your choice? [4+12]

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Code No: R05410401 **Set No. 4**

IV B.Tech I Semester Regular Examinations, November 2008
COMPUTER NETWORKS
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Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain problems of the TCP/IP model and protocols?
   (b) With a neat diagram explain ARPANET design? [8+8]
2. (a) Discuss in detail about asynchronous communication?
   (b) Discuss in detail about broad band ISDN? [8+8]
3. (a) Discuss the use of a hamming code to correct burst errors?
   (b) Explain sliding window protocol using go-back-n? What are its advantages? and disadvantages? [8+8]
4. (a) What is the prime difference between a token bus and a token ring?
   (b) A large population of ALOHA users manages to generate 50 requests/sec, including both originals and retransmissions. Time is slotted in the units of 40 msec.
      i. What is the chance of success on the first attempt?
      ii. What is the probability of exactly k collisions and then a success?
      iii. What is the expected number of transmission attempts needed? [4+12]
5. What are the services provided by Network layer to Transport layer. Explain. [16]
6. (a) Explain how service differentiation can be achieved using type of service field.
   (b) The IP header checksum only verifies the integrity of IP header. Discuss the pros and cons of doing the checksum on the header part versus on the entire packet.
   (c) Identity the range of IPv6 addresses spanned by Class A, Class B and Class C. [5+6+5]
7. (a) Why Pseudo header is used in computing TCP Checksum?
   (b) Explain how TCP controls congestion? [6+10]
8. Explain in detail DES. [16]

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