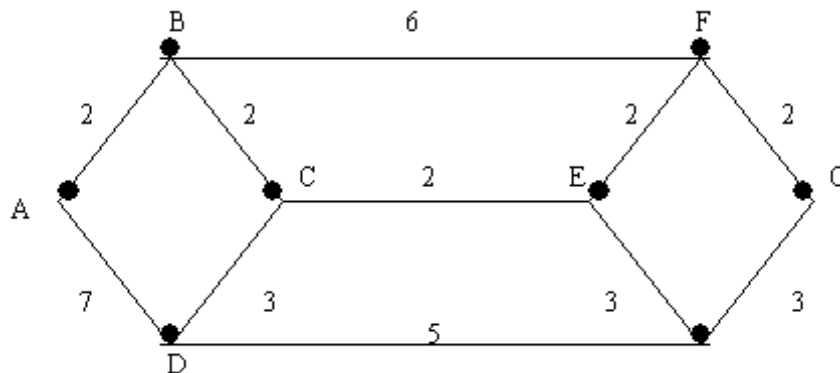


III B.Tech. II Semester Regular Examinations, April/May -2005
COMPUTER NETWORKS
 (Common to Computer Science & Engineering, Information
 Technology, Electronics & Control Engineering, Computer Science & Systems
 Engineering and Electronics & Computer Engineering)
Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Why network software is designed based on layer model? Discuss the advantages and disadvantages of the layer model.
 (b) What is the simplex stop and wait protocol? Give its algorithms in terms of primitives at data link layer.
2. Compare channel efficiency in pure ALOHA and slotted ALOHA.
3. (a) Enumerate and illustrate the design issues of Network layer.
 (b) What is shortest path routing? Give Dijkstra's algorithm for shortest path. Use the following subnet for calculating shortest path.



4. (a) What is congestion? State the general principles of congestion control?
 (b) How congestion control is handled in virtual circuits subnets?
5. Compare and contrast internet transport protocols TCP and UDP.
6. (a) Explain with the help of a diagram the ATM reference model and functions of different layers.
 (b) Give ATM cell format. Explain how this format is used in different ATM adaptation layers.
7. (a) What is DNS? Explain usage of resource records.
 (b) What is the architecture of WWW? Discuss client and server side functionality of this architecture.

8. Write short notes on any three of the following:

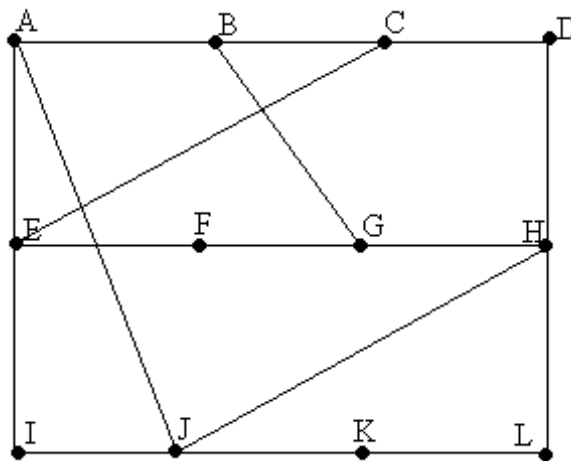
- (a) Architecture of email
- (b) Differentiate between Goback to N and selective repeat algorithms.
- (c) Heirarchical routing
- (d) Backward learning

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Answer any FIVE Questions
All Questions carry equal marks

1. (a) Compare and contrast OSI and TCP/IP reference models.
 (b) Write algorithm using data link layer primitives the simplex protocol for a noisy channel.
2. (a) What is CSMA/CD protocol? Where is it used? Indicate the different states of the protocol.
 (b) What is the binary count down protocol? Why is it considered as collision free protocol?
3. What is distance vector algorithm? Explain its usage for the following subnet. What problems are associated with this algorithm? How are they overcome?



(Make necessary assumptions)

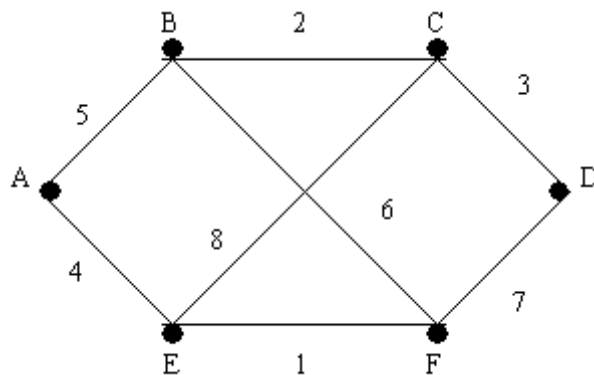
4. Discuss different congestion algorithms in datagram subnets.
5. Draw the header structures of UDP and TCP protocols. Discuss the usage of these headers in transport layer services.
6. How ATM reference model differs from conventional reference models of ISO/OSI and TCP/IP. Discuss how different services are provided by ATM networks.

7.
 - (a) Explain in detail how DNS operates.
 - (b) What is the architecture of email? What are the services provided by email?
8. Write short notes on any three of the following:
 - (a) Stop and wait protocol is a very noisy channel.
 - (b) Link state algorithm
 - (c) TCP transition state diagram
 - (d) Architecture of WWW.

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Answer any FIVE Questions
All Questions carry equal marks

1. What is a sliding window protocol? What assumptions are made in sliding window protocols? Give the algorithm for 1-bit sliding window protocol.
2. (a) Compare and contrast static and dynamic channel allocation methods.
 (b) What is the adaptive tree protocol? Why is it considered collision free protocol?
3. What is the link state protocol? Explain its functioning for the following subnet. Discuss the problems associated and their solutions in link state algorithm.



4. (a) What is congestion? Why congestion control mechanisms differ for virtual circuit subnets and datagram subnets?
 (b) Enumerate the primitives of the transport service. How are they used in transport layer?
5. (a) Draw the header part of UDP protocol. Explain the components. In what application UDP is used and why?
 (b) Draw the header part of the TCP protocols. Explain the usage of each field in providing the transport service.
6. (a) Draw the ATM cell format. Explain how different fields in cell format are used.
 (b) Enumerate ATM adaption layers. How do they provide different class of services in ATM networks.

7. (a) What is WWW? Give its architecture. Discuss requirements of server side and client side.
(b) What is SNMP? Explain usage of SNMP.
8. Write short notes on three of the following:
 - (a) Compare and contrast ISO/OSI and TCP/IP reference models
 - (b) Spanning tree and remote bridges.
 - (c) Comparison of Datagram and virtual circuit subnets
 - (d) Architecture of DNS.

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Answer any FIVE Questions
All Questions carry equal marks

1. Compare and contrast Goback to N and selective repeat protocols with the help of figures. What additional functionality is needed compared to 1-bit sliding window protocol?
2. (a) What is the Ethernet? What are the most commonly used Ethernet cabling types? Give one example in Ethernet lan to avoid collisions.
(b) What is a bridge? How does it function? Explain the usage of spanning tree bridges.
3. (a) Compare virtual circuit and datagram subnets.
(b) What is hierarchical routing? When is it used? State merits and demerits of hierarchical routing.
4. (a) Enumerate transport service primitives. Explain with the help of a state diagram connection establishment and release using these primitives.
(b) Illustrate different protocol scenarios for establishing a connection using three way handshake.
5. What is TCP service model? Explain in detail usage of TCP segment header in providing these services.
6. (a) Give the ATM reference model. Discuss how this model differs from ISO/OSI and TCP/IP models.
(b) What are the currently specified AAL types? How cell header is used to achieve the service required at each sublayer.
7. (a) Differentiate between static and dynamic content in WWW. How are they provided?
(b) What is SNMP? Explain its functioning.
8. Write short notes on any three of the following:
 - (a) Architecture of email
 - (b) Pure ALOHA and slotted ALOHA
 - (c) Link state algorithm
 - (d) ISO/OSI and TCP/IP models.
