**B.E/B.Tech DEGREE EXAMINATION Nov\Dec2006**  
**Fifth Semester  
Computer Science and Engineering**  
**CS1302 – COMPUTER NETWORKS**  
**(Regulation 2004)  
Time: 3 hours                                                               Maximum marks: 100**

**Answer ALL questions**

**PART A (10 x 2 =20 marks)**

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| [1. State the major functions performed by the presentation layer of the ISO OSI model.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/1.html)  [2. A sine wave has a frequency of 6Hz. What is its period?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/2.html)  [3. Briefly discuss stop-and-wait method of flow control.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/3.html)  [4. List the two types of data frames in FDDI.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/4.html)  [5. List the two forms in which virtual circuit packet switching is implemented.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/5.html)  [6. Which class does the following IP address belong to?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/6.html)  [7. What is a datagram socket?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/7.html)  [8. “TCP software is implemented as a Finite State Machine”, Discuss.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/8.html)  [9. What is a Domain Name Server?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/9.html)  [10. State the application layer protocol in the TCP/IP protocol suite that provides access to a networked file server.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_a/10.html)  **PART B (5 x 16 = 80)**  [11.(a) (i) What is a Protocol?  List the three key elements of a protocol.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_a_1.html)  [(a) (ii) With relevant examples differentiate between simplex, half duplex and full duplex communication.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_a_2.html)  [(a) (iii) A Sine wave completes one cycle in 25 μs. What is its frequency? Express the frequency in KHz.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_a_3.html)  [(a) (iv) A digital signal has a bit interval of 40 μs. What is the bit rate? Express the bit rate in Kbps.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_a_4.html) **(or)** [11.(b) (i) An analog signal carries four bits in each signal element. If 1000 signal elements are sent per second, find the baud rate and the bit rate.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_b_1.html)  [11. (b) (ii) Discuss the role played by repeaters in Terrestrial Microwave communication? Is the distance between repeaters fixed? Discuss.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_b_2.html)  [11. (b) (iii) A network has ‘n’ devices.  Determine the number of cable links required for a mesh, ring, bus and star topology.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/11_b_3.html)  [12. (a) (i) A block of 32 bits has to be transmitted.  Discuss how the thirty two bit block is transmitted to the receiver using Longitudinal Redundancy Check.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_a_1.html)  [12. (a) (ii) Consider a 32 bit block of data 11100111 11011101 00111001 10101001 that has to be transmitted. If Longitudinal Redundancy Check is used what is the transmitted bit stream?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_a_2.html)  [12. (a) (iii)  In the Hamming code, for a data unit of m bits how do you compute the number of redundant bits ‘r’ needed?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_a_3.html)  [12. (a) (iv) What kinds of errors can Vertical Redundancy check determine? What kinds of errors it cannot determine?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_a_4.html) **(or)**             [12. (b) (i) List the three main functions performed by the data link layer of the ISO OSI model.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_b_1.html)  [12. (b) (ii)  Explain the working of Carrier Sense Multiple Access protocol.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_b_2.html)  [12. (b) (iii) How does a Token Ring LAN operate? Discuss.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_b_3.html)  [12. (b) (iv) List and briefly discuss the two different basic transmission technologies that can be used to set up wireless LAN’s.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/12_b_4.html)  [13. (a) (i) State which layers of the ISO OSI model does the following interconnecting devices operate.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/13_a_1.html)  [13. (a) (ii) State the major difference between Distance Vector Routing and Link State Routing.  Discuss how these routing techniques work.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/13_a_2.html) **(or)** [13. (b) (i) What is subnetting? Discuss. Also state which classes of IP address can be subnetted.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/13_b_1.html)  [13. (b) (ii)  What is subnet masking? Discuss.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/13_b_2.html)  [13. (b) (iii) How can we prove that we have 2, 147, 48, 648 address in class A?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/13_b_3.html)  [13. (b) (iv) What is the subnetwork  address if the destination address is 200.45.34.56 and the subnet mask is 255.255.240.0?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/13_b_4.html)  [14. (a) (i) List and discuss the various primitives for a simple transport service.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/14_a_1.html)  [14. (a) (ii) “DNS can use the services of UDP or TCP using port 53”.  Discuss when UDP is used and when TCP is used.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/14_a_2.html)  [14. (a) (iii) Highlight the features of UDP and briefly discuss the same.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/14_a_3.html) **(or)** [14. (b) (i) Discuss connection establishment and connection release in TCP.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/14_b_1.html)  [14. (b) (ii) Discuss how TCP provides reliability using error control.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/14_b_2.html)  [14. (b) (iii)  Discuss the strategies TCP uses to avoid congestion.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/14_b_3.html)  [15. (a) (i) With a relevant example discuss how the domain space is divided.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/15_a_1.html)  [15. (a) (ii) Distinguish between a fully qualified domain name and a partially qualified domain name.  Give relevant example.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/15_a_2.html) **(or)** [15. (b) (i) Discuss how Simple Mail Transfer Protocol (SMTP) works? Can multimedia messages be transmitted using SMTP? Discuss.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/15_b_1.html)  [15. (b) (ii) Is Common Gateway Interface a language? Discuss.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2006/5th_sem/cse/cs1302/part_b/15_b_2.html) |

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| **B.E/B.Tech DEGREE EXAMINATION Nov\Dec2007** **Fifth Semester Computer Science and Engineering** **CS1302 – COMPUTER NETWORKS** **(Regulation 2004) Time: 3 hours                                                               Maximum marks: 100**  **Answer ALL questions**  **PART A (10 x 2 =20 marks)**   |  | | --- | | [1. Define the term Protocol and give its key elements.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/1.html)  [2. List the issues associated with RS-232 standard.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/2.html)  [3. What is Modulo-2 arithmetic?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/3.html)  [4. Define the term SONET?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/3.html)  [5. Give an account on Private addresses.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/5.html)  [6. What is the meaning of multiple IP address of Router?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/6.html)        [7. Give the format for UDP datagram and give the meaning for each field.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/7.html)  [8. Define the terms (a) Jitter (b) Socket address.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/8.html)  [9. What is MIME?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/9.html)  [10. Give an account on Steganography.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_a/10.html)  **PART B (5 x 16 = 80)**  [11. (a) (i) Explain Layers in OSI model. (8 mark)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/11a_1.html)  [11. (a) (ii) Explain the Star and Bus topologies of computer networks. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/11a_2.html) **(or)** [11. (b) (i) Explain about Coaxial cable and Fiber Optics media for communication. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/11b_1.html)  [11. (b) (ii) Explain about the transmission modes available for data flow. (4 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/11b_2.html)  [11. (b) (iii) Explain the categories of networks. (4 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/11b_3.html)  [12. (a) (i) Explain CRC error detection mechanism with an example. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/12a_1.html)  [12. (a) (ii) Explain HDLC in detail. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/12a_2.html) **(or)** [12.(b) (i) Explain the frame format of IEEE 802.3 and IEEE 802.5 in detail.  (10 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/12b_1.html)  [12. (b) (ii) What is CSMA/CD? Explain. (6 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/12b_2.html)  [13. (a) (i) Explain about Special IP addresses in detail. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/13a_1.html)  [13. (a) (ii) A company is granted the site address 201.70.64.0.  The company needs 6 subnets.  Design the subnets. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/13a_2.html) **(or)** [13. (b) (i) Explain Link state routing. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/13b_1.html)  [13. (b) (ii) Explain Routing table and Routing module. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/13_b_2.html)  [14. (a) (i) Explain the Steps involved in computing Checksum for an UDP Datagram. (12 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/14a_1.html)  [14. (a) (ii) Explain Four-way Handshaking method to terminate a connection in TCP? (4 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/14a_2.html) **(or)** [14. (b) (i) Explain about TCP Congestion control technique in detail. (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/14b_1.html)  [14. (b) (ii) What is Silly Window Syndrome? How do you avoid it? (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/14b_2.html)  15. (a) Explain the followings related with FTP:  [(i) Connections and communications (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/15a_1.html)  [(ii) Commands  (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/15a_2.html) **(or)** 15. (b) Explain the followings related with HTTP:  [(i) Messages (8 marks) (ii) Headers (8 marks)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_nd_2007/5th_sem/cse/CS1302/part_b/15b.html) | |
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| **B.E/B.Tech DEGREE EXAMINATION May/Jun 2007** **Fifth semester Computer Science and Engineering** **CS1302 -COMPUTER NETWORKS** **(Regulation 2004) Time: 3 hours                                                                                              Maximum marks: 100**  **Answer ALL questions**  **PART A (10 x 2 =20 marks)**   |  | | --- | | [1.State the purpose of layering in networks?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/1.html)  [2.At which level of OSI model does repeaters, bridges, routers and gateways operate?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/2.html)  [3.State the difference between token ring and FDDI?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/3.html)  [4.Give the structure of encoder and decoder in error correction.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/4.html)  [5.What is meant by IP spoofing?  How can be router be used to prevent IP spoofing?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/5.html)  [6.What kind of routing information do routers exchange among themselves while running distance vector algorithm?  In particular, briefly describe the format of the routing information that is exchanged.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/6.html)  [7.Briefly describe two advantages of using packet switching for data transmission.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/7.html)  [8.Explain how TCP flow control works.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/8.html)  [9.Why is DNS necessary? State it significance.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/9.html)  [10.What is Security Parameter Index?](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_a/10.html)  **PART B (5 x 16 = 80)**  [11 (a) (i). List four properties by which transmission media can differ. (4)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/11_a_1.html)  [(a) (ii). Three packets – switching networks each contain n nodes. The networks has a star topology has a star topology with a central switch, a ring respectively and a third is fully interconnected with a wire form every node to every other node. What are the best, average and worst case transmission paths in hops? (12)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/11_a_2.html) **(or)** [11.(b) (i). Describe the key elements of protocols and the standards. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/11_b_1.html)  [(b) (ii). Explain in detail the data transmission in OSI reference model. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/11_b_2.html)  [12. (a) (i) How does the 802.11 media access control protocol ensure that the  receiver has a greater chance to transmit the acknowledgement frame before any other wireless stations grab the media? Does it always guarantee that the acknowledgement frame sent by the receiver will not collide with another frame transmitted by another wireless station? (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/12_a_1.html)  [(a) (ii) Describe the collision avoidance mechanism used in 802.11 wireless LAN.  In particular, how such a mechanism solves the hidden terminal problem. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/12_a_2.html) **(or)**   [12. (b) Describe two approaches by which packet loss is detected in a Go back –N ARQ protocol and Selective Repeat.](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/12_b.html)  [13(a) (i). How is the looping problem solved by switches and by routers?  How do switches and by routers.  How do switches/routers handle link failure? (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/13_a_1.html)  [13. (a) (ii). Explain the IP addressing. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/13_a_2.html) **(or)** [13. (b) (i). Compare and Contrast Link State and Distance Vector algorithms. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/13_b_1.html)  [13. (b)(ii). In the virtual circuit network service model, before a virtual circuit is setup, the source router needs to specify a path (e.g., the shortest path) from the source to the destination.  What additional information do we need to maintain in the routing table to support this function? Write down the resulting routing table. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/13_b_2.html)  [14. a) If UDP does not provide any service guarantees or reliable transfer, why can’t application directly access IP and do without it?  Explain UDP in details. (16)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/14_a.html) **(or)** [14. (b) What is QoS in internetworking?  State the technique to improve QoS. (16).](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/14_b.html)  [15. (a) What are the following acronym SMTP, FTP, WWW and HTTP stand for?  Explain their uses and state the strengths and weaknesses of each of them.(16)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/15_a.html) **(or)** [15. (b) (i). Explain in role of a DNS on a computer network, including its involvement in the process of a user accessing a web page. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/15_b_1.html)  [15. (b) (ii) Describe about symmetric – key Cryptography. (8)](http://enggedu.com/tamilnadu/university_questions/question_answer/be_mj_2007/5th_sem/cse/CS1302/part_b/15_b_2.html) | |
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| **B.E/B.Tech DEGREE EXAMINATION Apr/May2008** **Fifth semester Computer Science and Engineering** **CS1302 -COMPUTER NETWORKS** **(Regulation 2004) Time: 3 hours                                                                                              Maximum marks: 100**  **Answer ALL questions**  **PART A (10 x 2 =20 marks)**   |  | | --- | | 1. Draw a hybrid topology with a star backbone and four ring networks?  2. What is the significance of twisting in twisted pair cable?  3. What is the main purpose of the second ring in the FDDI protocol?  4. Assume a Go-Back-N protocol is used with a window size of 4 and that the ACK for packet 2 gets lost. Show the events until packet 2 is acknowledged at the sender side.  5. Is 3.54.81.76 a class A, B, C or D IP address? What are the network ID and host ID in decimal notation? Assume that subnets are not used.  6. What are the two main reasons that hierarchical routing is employed in the Internet, rather than using a single link-state or distance vector protocol to route packet globally?  7. Suppose we are downloading a file over 1.5 Mbps link using a TCP connection under slow start with RTT of 100 milliseconds. What will be the window size when the link is fully utilized?  8. What field in the IP datagram header is used to avoid forwarding datagram’s endlessly through routing loops? How is the header used to accomplish that?  9. Distinguish between iterative and recursive DNS queries?  10. Compare the way SMTP and HTTP transmit the images. Which one do you think is more efficient? Why?  **PART B (5 x 16 = 80)**  11. (a) What is the difference between a protocol and a service interface? Explain your answer in terms of the ISO seven layer models. (16 marks) **(or)** 11. (b) Explain how guided media differ from unguided media? Briefly explain any three methods used for data transmission using guided media and two methods used for data transmission using unguided media. (16 marks)  12. (a) Go-back-n and selective-reject are two basic approaches to deal with transmission errors.  (i)  Compare the two approaches in terms of storage and bandwidth requirements. (8 marks)  (ii)  With the aid of a packet sequence (timing) diagram, show the operation of go-back-n when a data-packet/ACK-packet/NAK-packet is corrupted. (8 marks) **(or)** 12.  (b)  Station A has two frames in a queue ready to send at the same time. On an 802.3 CSMA/CD network, is it guaranteed that Station B’s frame will be transmitted before the second frame of Station A is transmitted? Why? What is the answer for the same scenario on an 802.5 token ring network? Assume all frames have the same priority. (16 marks)  13. (a) 13. (a) Given the network topology below, use a link-state algorithm to compute the shortest path from A to all other nodes. Make sure to show the results of the computation at each step. (16 marks) **(or)** 13. (b) (i)  How do subnetting and supernetting enhance scalability? What is the purpose of a subnet mask and a supernet (CIDR) mask? Is a subnet mask visible outside an IP network? Is a CIDR mask visible outside an IP network?  13. (b) (ii) What are the network number, subnet number, and host number for address 135.104.192.100, mask 255.255.128.0 ?  13. (b) (iii) How many addresses are spanned by the CIDR address 205.12.192.0/20, and what range do they span?  14. (a) Compare and contrast the two TCP/IP transport protocols: TCP and UDP, in terms of demultiplexing, reliability, and flow control. How does TCP identify a connection? Is the information needed for this identification readily available to the TCP software in the received TCP segment? Explain. With the help of a diagram, explain how a connection is established in TCP. (16 marks) **(or)** 14. (b) How many RTTs does it take until the sender’s congestion window reaches 1Mbytes? Recall that the congestion window is initialized to the size of a single segment, and assume that the slow-start threshold is initialized to a value higher than the receiver’s advertised window. If the time to send the file is given by the number of required RTTs times the RTT value, what is the effective throughput for the transfer? What percentage of the link bandwidth is utilized? (16 marks)  15.  (a) You are going to use a terminal of the host xyz.cse.edu to write an email from your email account to my email account, with the content “I wanna pass!” Write down in sequence the commands in SMTP, along with any necessary argument, that you need to use to send this email. (16 marks) **(or)** (b) (b) Describe with an example how does a HTTP request retrieves the document usr/users/doc/doc 1. Use atleast two general headers, two request headers and one entity header. Show the response if the document has moved to usr/deads/doc 1 and if there is a syntax error in the request. (16 marks) | |
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**B.E/B.Tech DEGREE EXAMINATION Nov/Dec 2008**  
**Fifth semester  
Computer Science and Engineering**  
**CS1302 -COMPUTER NETWORKS**  
**(Regulation 2004)  
Time: 3 hours                                                                                              Maximum marks: 100**

**Time: Three hours Maximum: 100 marks  
  
Answer ALL questions.  
PART A - (10 x 2 = 20 marks)**  
1. For n devices in a network, what is the number of cable links required for a mesh, ring, bus and star topology?  
2. What does the Shannon capacity have to do with communications?  
3. How does a single-bit error differ from a burst error?  
4. Compare a piconet and a scatter net.  
5. What are the differences between classful addressing and classless addressing in IPV4?  
6. Is the size of the ARP packet fixed? Explain.  
7. Do port addresses need to be unique? Why of why not?  
8. How are congestion control and quality of service related?  
9. What are the two main categories of DNS messages?  
10. How is HTTP similar to SMTP?  
  
**PART B - (5 x 16 = 80 marks)**  
11.(a) Discuss briefly about the layers present in the OSI model. [MARKS 16]  
 OR  
(b) (i) Discuss briefly about the line coding process used for converting digital data to digital signals.   
[MARKS 10]  
(ii) Write a short note on transmission media. [MARKS 6]

12.(a) (i) With an example, illustrate how CRC encoder and decoder will work. [MARKS 10]  
(ii) Compare and contrast the Go-Back-N ARQ protocol with selective repeat ARQ. [MARKS 6]  
 OR  
(b) (i) Discuss in detail about the wireless LAN MAC sub layers. [MARKS 8]  
(ii) Discuss briefly about the high speed networks. [MARKS 8]

13.(a) Discuss in detail about the OSPF routing protocol. [MARKS 16]  
 OR  
(b) (i) Discuss briefly about the network address translation. [MARKS 10]  
(ii) Define fragmentation and explain why the IPV4 and IPV6 protocol need to fragment some packets. [MARKS 6]

14. (a) How the connection is established using three-way handshaking, explain in detail? [MARKS 16]  
 OR  
(b) (i) Discuss briefly about the techniques used to improve QoS. [MARKS 8]  
(ii) Discuss about the Intserv, a flow-based QoS model. [MARKS 8]  
15. (a) (i) Discuss briefly about the DNS in the internet. [MARKS 8]  
(ii) Discuss briefly about the file transfer protocol. [MARKS 8]  
 OR  
(b) (i) Discuss about the components of network management on the Internet. [MARKS 8]  
(ii) Write short notes on symmetric-key cryptography. [MARKS 8]

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| **B.E/B.Tech DEGREE EXAMINATION May/Jun 2009**  **Computer Science and Engineering** **CS1302 -COMPUTER NETWORKS** **(Regulation 2004) Time: 3 hours                                                                                              Maximum marks: 100**  **Time:3 hours Maximum:100marks** Answer all the questions  PART-A(10\*2=marks)  1.List the layers in the OSI model that handle end-to-end connections. 2.Consider a data stream consisting of ten Os. Encoded this stream using the following encoding schemes. Compare the number of transitions that occur in the encoded streams. 3.Assuming a framing protocol that uses bit stuffing, show the bit sequence transmitted over a link when the frame contains the bit sequence 4.What is the size of the smallest Ethernet frame? What determines this size? 5.Identify the class/speciality of the following Ip addresses: (a)110.34.56.45 (b)127.1.1.1 (c)212.208.63.23 (d)255.255.255.255 6.What is the purpose of the Address Resolution Protocol (ARP)? 7,What are the flelds on which the UDP checksum is calculated? Why? 8.If two application programs use TCP to send data but send only one character at a time, what is the maximum percent of network bandwidth they will have for their data? 9.Is it possible that an organization's web server and mail server have the same alias for a host name? What would be the different Resource Records used in the case? 10.What are the three important aspects of security? Define them.  PART-B(5\*16=80marks)  11(a)(i)Discuss the various line encoding techniques used to send analog and digital data on digital channels. (ii)Calculate the baud rate for the following: (1)2000bps FSK (2)6000bps 8-psk (3)6000bps 16-QAM (4)6000bps tribit  or 11(b)(i)Explain how full duplex data transmission takes place on a RS232 DTE-DCE interface. (ii)A modified NRZ code known as enhanced NRZ (E-NRZ) is sometimes used for high density magnetic tape recording. E-NRZ entails separating the NRZ-L data stream into 7-bit words;inverting bits2,3,6 and 7; and adding one parity bit to each word to ensure odd parity. what are the advantages of E-NR over NRZ-L? Any disadvantages?  12(a)(i)Explain the techniques used in the 802.11 protocol for wireless networks. (ii)Draw the sender and receiver windows for a system using go-back-n ARQ for the following scenaric(n=4): Frame 0 is sent; frame 0 is acknowledged. Franes 1&2 are sent; and acknowledged. Frames 3&4 are sent; NAK 4 is received. Frames 4,5,&6 are sent;and all are acknowledged.  or 12(b)(i)Explain the operation of the FDDI protocol. Highlight the differences with respect to the 802.5 token ring protocol. Fiber distributed data interface (ii)Let A and B be two stations attempting to transmit frames on an Ethernet network. A collision occurs.  (1)What is the probability that A gets to transmit its First frame A1 immediately after the first collision?  (2)After that transmission A trues to send its second frame A2 and B its First frame B1. Will a collision occur? What is the probability of the collision?  (3)If a collision occurs, and a back-off takes place, what is the probability that A wins the race again?  13(a)(i)Discuss the various switching techniques used in networks. (ii)Consider sending a 2000-byte datagram that has arrived at a router R1 that needs to be sent over a link that has ab (maxumum transmission unit) MTV size of 500 bytes to R2. Then it has to traverse a link with an MTU of 200 bytes. Let the identification number of the original datagram be 351. How many framents are generated? What are the parameters associated with these Fragments?  or 13(b)(i)Explain the working of distance vector routing protocol with an example. (ii)For the routing table shown below, what does the router do with packets addressed to the following addresses?  14(a)(i)Explain the working of TCP using the state diagram. (ii)Suppose the letters "abcdefgh" are sent I per second, over a TCP connection with an RTT of 4.5 secs. Draw a timeline indicating when each packet is sent and what a contains.  or 14(b)(i)Discuss the operation if IntServ for providing QoS. Integrated Services (ii)Suppose you are downloading a large file over a 3 kbps phone link. Your software displays an average bytes per second counter. How will TCP congestion control and occasional packet losses cause this counter to fluctuate?  15(a)(i)Explain the salient features of the SMTP protocol.  (ii)Consider accessing a web page consisting of 10 object (assume that each object fits is 1 Mss) using persistent HTTP, Draw a time-line diagram showing the transfer of data taking congestion control into consideration.  or 15(b)(i)Discuss the various commands used in FTP. (ii)What is the idea used in public key encryptions systems?  **ANNA UNIVERSITY – TIRUNELVELI   B.E/B.Tech DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2009  FIFTH SEMESTER  CSE  CS1302 – COMPUTER NETWORKS  (REGULATIONS 2007)  (COMMON TO IT) PART – A** 1. Which of the OSI layers handles each of the following (a) Dividing the transmitted bit streams into frames (b) Determining which route through the subnet to use 2. What are the advantages of wireless media over wired media? 3. Compare the performance of 1 – persistent and non-persistent CSMA protocols in terms of channel utilization under varying loads. 4. What is the level of reliability provided by the simple parity scheme in error detection? 5. Datagram organization of the network is similar to that of the services offered by the postal department. Justify this statement. 6. What is the significance of the IP addresses of the format 127.x.y.z? 7. Reliability is not required for a data communication. Even then transport layer is required in TCP/IP networks. Why? 8. What types of applications prefer UDP rather than TCP? 9. What are the limitations of symmetric cryptosystems? 10. Differentiate between FTP and TFTP protocols.  **PART – B** 11. (a) (i) Illustrate the functioning of an optical fiber transmission system in terms of the emitter, fiber and detector.(8) (ii) Describe the functioning of a microwave based communication system (4) (iii) Discuss the advantages and disadvantages of microwaves over radio waves (4)  Or (b) (i) Mention the design principles that were applied in arriving the seven- layer model of the ISO/OSI reference model. (6) (ii) Explain the seven layers of the ISO/OSI reference model in detail with a neat diagram. (10)   12. (a) (i) A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x3 +1. Show the actual bit string transmitted. Suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receiver’s end. (8) (ii) Explain the following framing techniques with examples: (1) Character count (2) (2) Flag byte with byte stuffing (2) (3) Starting and ending flags , with bit stuffing (2) (4) Physical layer coding violations (2)  Or (b) (i) Discuss the limitations of stop and wait protocol (4) (ii) Explain the window maintenance at the sender and receiver in the sliding window protocol. (6) (iii) Compare and contrast the go back –n and selective repeat variants of the sliding window protocol. (6)  13. (a) (i) Explain the distance vector routing protocol with an example(10) (ii) Mention the advantages and disadvantages of distance vector routing protocol (6)  Or (b) (i) Explain the link state routing algorithm with an example. (10) (ii) Mention the advantages and disadvantages of link state routing protocol. (6)  14. (a) (i) Suppose that TCP congestion is set to 18KB and a timeout occurs. How big will the window be if the next four transmission bursts are all successful? Assume that the maximum segment size is 1KB(4) (ii) Consider the effect of using a slow start on a line with a 10 msec round trip time and no congestion. The receiver window is 24KB and the maximum segment size is 2 KB. How long does it take before the first full window can be sent? (6) (iii)Explain the improvement suggested by Karn in deciding the time out period in TCP. (6)  Or (b) (i) If the TCP round-trip time,RTT,is currently 30 msec and the following acknowledgements come in after 26,32 and 24 msec,respectively what is the new RTT estimate using the Jacobson’s algorithm? Use a = 0.9. (6) (ii) A TCP machine is sending full windows of 65,535 bytes over a 1-Gbps channel that has a 10 msec one-way delay. What is the maximum throughput available? What is the line efficiency? (4) (iii) Explain the three way handshake protocol used by TCP to establish the connection (6)  15.(a) (i) Explain the process of establishing the connection with the web server, fetching a web page and displaying it using HTTP (8) (ii) Discuss the SMTP protocol by describing a typical client server interaction (8)   Or (b) Explain the principles, organization and provided services of DNS in detail (16) \_\_\_ |