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Question Paper Code : 21395

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Sixth Semester

Electrical and Electronics Engineering

CS 2363/CS 65/10144 CS 503 — COMPUTER NETWORKS

(Regulations 2008/2010)

(Common to PTCS 2363 - Computer Networks for B.E. (Part-Time) Sixth Semester
Electrical and Electronics Engineering – Regulations 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

- Given the data word 1010011110 and the divisor 10111,
 - Show the generation of the codeword at the sender site (using binary division).
 - Show the checking of the codeword at the receiver site (assume no error).
- Using 5-bit sequence numbers, what is the maximum size of the send and receive windows for each of the following protocols?
 - Stop-and-Wait ARQ
 - Go-Back-NARQ
 - Selective-Repeat ARQ.
- In a block of addresses, we know the IP address of one host is 25. 34. 12. 56 / 16. What are the first address (network address) and the last address (limited broadcast address) in this block?
- What is the need of ARP and RARP protocol in networking?
- In cases where reliability is not of primary importance, UDP would make a good transport protocol? Give examples of specific cases.
- The address field of a Frame Relay frame is 1011000000010111. Is there any congestion in the forward direction? Is there any congestion in the backward direction?

7. Some sites ask the user to view an image containing some text and enter the characters seen there as an added level of authentication. State the reason behind this.
8. Identify the various security services provided by IPsec.
9. With an example write about the recursive and iterative query process done by DNS resolver in resolving the query.
10. Write about the functions of SMTP and MIME. How does MIME enhances SMTP?

PART B — (5 × 16 = 80 marks)

11. (a) Assume that two nodes A and B in a LAN use sliding window protocol (Selective- Reject - ARQ) with a 4-bit sequence number. Assume A is transmitting and B is receiving, show the window positions for the following events.
 - (i) After A sends frames from 0 to 5
 - (ii) B acknowledge upto 4th frame with single ack.
 - (iii) Frame from 6 to 9 are sent.
 - (iv) Frame 5 is acknowledged.
 - (v) Timer for 6 and 7 expired.

What would be the next transmission between A and B?

Or

- (b) Explain the different types of Ethernet LAN with its implementation.
12. (a) An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets.
 - (i) Find the subnet mask.
 - (ii) Find the number of addresses in each subnet.
 - (iii) Find the first and last addresses in subnet 1.
 - (iv) Find the first and last addresses in subnet 32.

Or

- (b) A router using RIP has the routing table shown below. Show the RIP response message sent by the router

Destination	Cost	Next	Router
Net 1	4		B
Net 2	2		C
Net 3	1		F
Net 4	5		G

13. (a) Explain how TCP uses a congestion window and a congestion policy that avoid congestion and detect congestion after it has occurred.

Or

- (b) An output interface in a switch is designed using the leaky bucket algorithm to send 8000 bytes/s (tick). If the following frames are received in sequence, show the frames that are sent during each second.

Frames 1, 2, 3, 4: 4000 bytes each

Frames 5, 6, 7: 3200 bytes each

Frames 8, 9: 400 bytes each

Frames 10, 11, 12: 2000 bytes each.

14. (a) Explain with relevant diagrams how PGP protocol can be used to create a secure e-mail.

Or

- (b) Explain AH protocol and ESP protocol in detail along with their packet format and modes of operation.

15. (a) Explain the working of DNS in detail with relevant diagrams.

Or

- (b) Explain how FTP is used to transfer the file between the end systems.