

End Semester Examinations - Nov-Dec 2015 Exams

14CA3004 Principles of Network Security

Set A

Time : 3 hrs
Total Marks: 100

1. a. Use additive cipher with key $k=7$ to encrypt the message "security" and decrypt the cipher text to form the plain text. (12)
b. Eve has intercepted the cipher text "UVACLYFZLJBYL" show how she can use a brute force attack to break the cipher text. (8)

OR
2. a. Encrypt the message "this is an exercise" using affine cipher with the key pair (7,2). Ignore the space between words. Decrypt the message to get the original plain text (15)
b. Differentiate between a monoalphabetic cipher and a polyalphabetic cipher. (5)
3. a. Use Julius Caesar Cipher to encrypt the text "work patiently" and decrypt the cipher text to form the plain text. (10)
b. Briefly describe about cryptanalysis. (5)
c. Write short notes on the Goals of Computer Security. (5)

OR
4. a. Consider Ro= 1111 0000 1010 1010 1111 0000 1010 1010 by using mangler function expand 4 bit data to 6 bit data. (8)
b. Explain DES Algorithm with neat block diagram. (12)
5. a. Perform encryption and decryption using the RSA algorithm for the following data $P=3$; $q=11$, $d=7$; $M=5$. (10)
b. Describe about the different modes of operation. (10)

OR
6. a. Assume that Alice has only two user IDS, `alice@some.com` and `alice@anet.com`. Alice has two set of private/public keys one for each user ID. Construct a private key ring table for Alice. (12)
b. Write short notes on Digital Signature (8)
7. a. Describe about Kerberos V4. (12)
b. Write short notes on Diffie-Hellman key Agreement. (8)

OR
8. Explain about E-mail architecture and list the format of a public key ring table. (20)
9. a. Explain Intrusion Detection System.

(15)

b. Explain the threats and viruses with example.

(5)

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14CA3005 Wireless Networks

Set B

Time : 3 hrs
Total Marks: 100

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|-----------|--|------------|
| 1. | a. Brief about the Cellular Concept used in wireless networks. | [10 Marks] |
| | b. Differentiate circuit switching and packet switching. | [10 Marks] |
| OR | | |
| 2. | Elaborate the network architecture of GSM with a neat diagram. | [20 Marks] |
| 3. | Describe about the functionalities of Globalstar Satellite-based Mobile Telephony Systems in a satellite communications. | [20 Marks] |
| OR | | |
| 4. | a. Differentiate the characteristics of Low Earth Orbit (LEO), Medium Earth Orbit (MEO) and GEO orbits. [10 Marks] | |
| | b. List the characteristics and applications of satellite communications. | [10 Marks] |
| 5. | a. Describe the main characteristics of two types of Wireless local loop techniques. [10 Marks] | |
| | b. Discuss about any TWO architectures of satellite based internet access in satellite communication. [10 Marks] | |
| OR | | |
| 6. | a. Differentiate the features of Wireless LAN topologies in a network. | [5 Marks] |
| | b. List the applications of Wireless LAN. | [5 Marks] |
| | c. Discuss about the requirements to set up a Wireless LAN. | [10 Marks] |
| 7. | a. Justify that the Personal Area Networks (PAN) is used in medical applications to safeguard the patients. [2 Marks] | |
| | b. Differentiate any THREE features of LAN and PAN | [3 Marks] |
| | c. State any five applications of Personal Area Networks (PAN). | [5 Marks] |
| | d. Describe about the layers in core specification of Bluetooth Protocol stack in a personal area networks. [10 Marks] | |
| OR | | |
| 8. | a. Describe about the security services of wireless networks. | [10 Marks] |
| | b. Give reasons for having security problems in wireless networks. | [10 Marks] |
| 9. | Discuss about the security attacks in wireless networks. | [20 Marks] |
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Karunya University
(Karunya Institute of Technology and Sciences)
(Declared as Deemed to be University under Sec.3 of the UGC Act, 1965)

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14CA3014 Network Analysis, Architecture and Design

Set A

Time : 3 hrs
Total Marks: 100

1. a. Describe about the various user requirements in detail through suitable examples? (10 Marks)
b. Show the diverse environment specific thresholds and limits of application requirements? (10 Marks)
OR
2. a. Explain about the diverse performance characteristics of a network? (10 Marks)
b. Summarize about the various device Requirements of a network? (10 Marks)
3. Apply the following flow models to a telelearning environment.
a. Peer to peer (6 Marks)
b. Client Server (7 Marks)
c. Distributed Computing (7 Marks)
OR
4. Give an outline about the various types of architecture models for an ATM network (20 Marks)
5. a. Identify and discuss the various delay requirements which are helpful to design an network (10 Marks)
b. How to make use of supplemental performance requirements to develop a network? (10 Marks)
OR
6. a. Construct and optimize the reference architecture for designing a network with suitable example (10 Marks)
b. Compare and contrast the system and network architecture (10 Marks)
7. a. Develop a security and privacy plan for an ATM network? (10 Marks)
b. How will you administer the security and privacy issues in an ATM network? (10 Marks)
OR
8. Demonstrate the diverse network layouts which are helpful in designing a network? (20 Marks)
9. Experiment with the various architectural consideration for efficient management of a network (20 Marks)

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14CA3015 IP Routing Technology

Set B

Time : 3 hrs
Total Marks: 100

1. a. Consider yourself as a Network Administrator and identify the metrics for finding the best path to route the packet from source to destination using Routing Protocols. (15)
b. Differentiate Subnetting and Supernetting. (5)
OR
2. a. Mention the need for an Automated Routing Solution and explain the characteristics of the routing protocol. (15)
b. Explain the rows and columns in the routing table. (5)
3. a. Explain the different ways in which the routed packet reaches the destination. (16)
b. Differentiate static and dynamic routing. (4)
OR
4. a. Explain the route summarization in IGRP. (15)
b. Differentiate RIP and IGRP. (5)
5. a. Explain the EIGRP Terminology. (15)
b. Mention the advantages and disadvantages of IGRP. (5)
OR
6. a. As a Network Administrator explain the steps required to configure the RIP protocol. (16)
b. List the routing characteristics of IGRP. (4)
7. a. Discuss the purpose of the following (10)
 - i. DUAL
 - ii. Hold timer
 - iii. Smooth Round Trip Timer (SRTT)
 - iv. Successor
 - v. Q
b. Explain how OSPF operates in single area. (10)
OR
8. a. Inspect the different types of packet in EIGRP and briefly explain. (5)
b. Differentiate OSPF and EIGRP Routing Protocol. (10)
c. Explain the Router States of OSPF. (10)
9. Explain the need for redistribution. (20)

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14CA3017 LAN Switching Technologies

Set A

Time : 3 hrs
Total Marks: 100

1. a. Differentiate the collision domains and broadcast domains. [4 Marks]
- b. Find out the number of collision domains and broadcast domains in the following figures. [8 Marks]

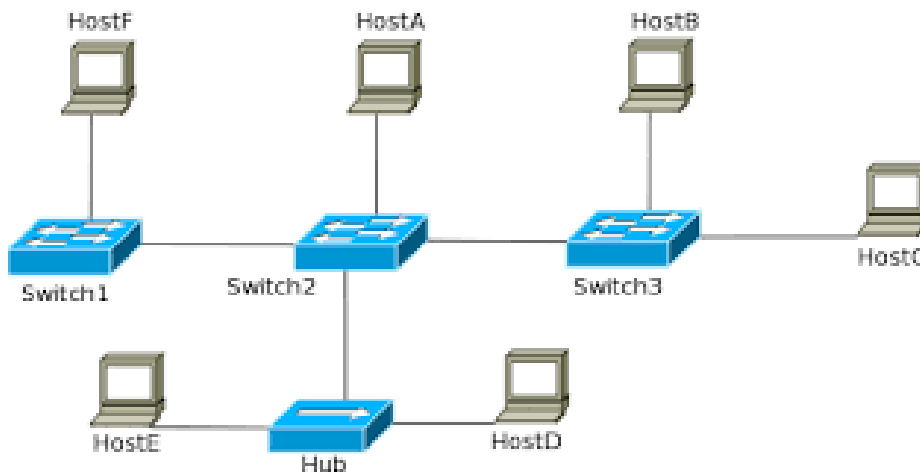


Figure 1

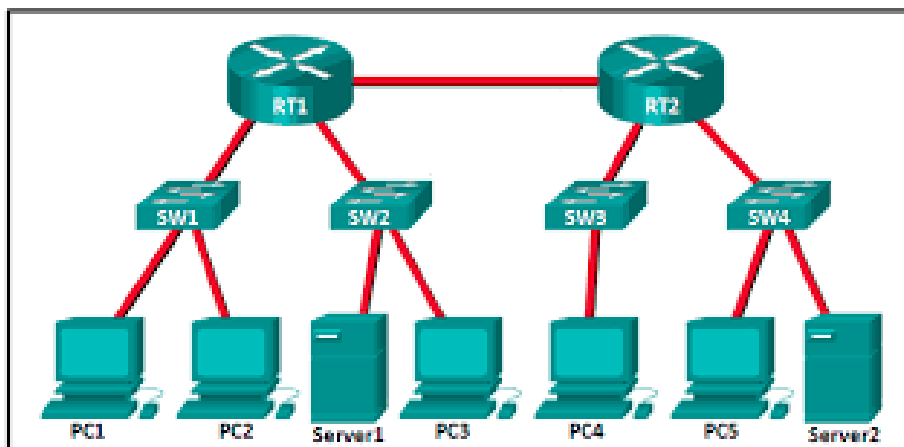


Figure 2

- c. State the benefits of using Spanning Tree Protocol (STP) in the network with suitable example. [8 Marks]

OR

2. a. Justify with reasons that there is a need of buffering data in the Catalyst switches. [5 Marks]
- b. Describe the two types of buffered memory management used in the catalyst switches and give one example of catalyst switch that uses these buffered memory. [8 Marks]
- c. List the advantages and disadvantages of shared bus architecture and justify how the disadvantage has been overcome in crossbar switching architecture. [7 Marks]
3. a. Discuss about the catalyst 5000/5500 switch components. [12 Marks]
- b. Give the steps of data flow from Host1 to Host2 in the catalyst 5000. [8 Marks]

OR

4. a. What is Etherchannel and list the benefits of using it in switching across the network. [6 Marks]
b. Brief about the three major aspects of Etherchannel. [10 Marks]
c. Explain the concept of VTP Pruning. [4 Marks]

5. a. Justify that MLS can be programmed on internal or external routers. [5 Marks]
b. Detail the requirements for enabling MLS on the Catalyst switch 5000 [6 Marks]
c. Describe the 2 tasks of router and explain how Layer3 Switch performs routing. [9 Marks]

OR

6. a. Brief about the steps involved in QoS operational model for a packet to traverse from ingress port to an egress port in a switch. [15 Marks]
b. State the benefits of Quality of service in a network. [5 Marks]

7. a. Explain the steps of IGMP snooping Leave process between the source and multiple receivers on the same VLAN. [8 Marks]
b. Brief about the operation of Cisco Group Management Protocol in a multicast traffic network. [12 Marks]

OR

8. a. Show the implementation of Inter-VLAN routing with a topology of four systems grouped into two VLANs: VLAN60 and VLAN70 using switch and router. [15 Marks]
b. Justify that using Trunk mode is beneficiary in Inter-VLAN routing across the network. [5 Marks]

9. a. State the benefits of using Wireless LAN than the Wired LAN [5 Marks]
b. Draw a topology using a router, switch with five hosts and give the configuration of all the devices and show how to block packets coming from a particular host or a network.

[10 Marks]

- c. Write the configuration of wireless router to create a wireless network. [5 Marks]

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14CA3021 Client Server Computing

Set B

Time : 3 hrs
Total Marks: 100

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1. a. Discuss in detail the components that make up the building blocks of client/server architecture with a neat sketch. (12 Marks)
b. Explain the various Client Software Products? (8 Marks)
 - OR**
 2. a. How do you design the Client Server technology for the following?
i) Client server for Tiny shops and Nomadic Tribes (6 Marks)
ii) Client server for small shops and Department (6 Marks)
b. Describe the role of process distribution in client server principles. (8 Marks)
 3. a. How best do you deploy to thousands of clients? How can the developers ensure that there are no conflicts with other installations? (12 Marks)
b. Discuss in detail the concept server scalability. (8 Marks)
 - OR**
 4. a. Explain how to apply application logic in the client-server computing? (10 Marks)
b. How the client requirements tools are used in software products? Give an example. (10 Marks)
 5. a. How would you organize the File Server and Database Server? Explain with a neat diagram (10 Marks)
b. Describe the client models. Give suitable examples. (10 Marks)
 - OR**
 6. a. Explain different type of client/server architecture and compare. (10 Marks)
b. Compare web Client Server and traditional Client Server. (10 Marks)
 7. a. Discuss and compare FAT Middleware with FAT Client and FAT Server (10 Marks)
b. Explain how to implement COM Client Server? (10 Marks)
 - OR**
 8. a. Write short notes on the following: (12 Marks)
i) File Server ii) Communication Server iii) Groupware Server iv) Web Server.
b. State the merits and demerits of Client based applications (8 Marks)
 9. a. Describe the layered architecture of CORBA. (14 Marks)
b. Discuss the reason to implement CORBA in client application? (6 Marks)

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