



Subject Code: IMT-101

Subject Name : Networking & Telecom Management

INSTRUCTION

- a. Write answers in your own words as far as possible and refrain from copying from the text books/handouts.
 - b. Answers of Ist Set (Part-A), IInd Set (Part-B), IIIrd Set (Part – C) and Set-IV (Case Study) must be sent together.
 - c. Mail the answer sheets alongwith the copy of assignments for evaluation & return.
 - d. Only hand written assignments shall be accepted.
- A. First Set of Assignments: 5 Questions, each question carries 1.5 marks.
 - B. Second Set of Assignments: 5 Questions, each question carries 1.5 marks.
 - C. Third Set of Assignments: 5 Questions, each question carries 1.5 marks. Confine your answers to 150 to 200 Words.
 - D. Forth Set of Assignments: Two Case Studies : 7.5 Marks. Each case study carries 3.75 marks.

ASSIGNMENTS

FIRST SET OF ASSIGNMENTS

Assignment-I = 5 Marks

PART- A

1.
 - a. Identify and describe the three communications elements.
 - b. Identify the five advantages of fiber optics as compared to coaxial and twisted pair cables.
 - c. Describe baseband transmission.
2.
 - a. Describe the disadvantage of Phase-Shift-Keying modulation (PSK).
 - b. Define and explain bandwidth efficiency.
 - c. How does multilevel encoding help with optimizing a data communication system?
3.
 - a. Explain the simplex, half-duplex and full-duplex transmission mode.
 - b. Describe the disadvantage of synchronous TDM and explain how the issue can be resolved.
 - c. Differentiate between Time division Multiplexing and Phase division Multiplexing
4.
 - a. Explain the advantage of error detection and name an encoding method that has a reliable error detection mechanism.
 - b. Describe the Data Encryption Standard (DES).

- c. Why is the point-to-point connection called a “store and forward” or “packet switched” network?
- 5.
- a. Why is the mesh topology barely used in any network system?
 - b. List three TCP/IP protocols that are implemented in the physical layer of the OSI model.
 - c. Describe connection oriented service and explain how it provides reliable communication.

SECOND SET OF ASSIGNMENTS

Assignment-II = 5 Marks

PART- B

1.
 - a. What are the main functions of the OSI presentation layer?
 - b. What are the two main functions of the Ethernet MAC layer?
 - c. Explain what causes collision and briefly describe how it is resolved.
2.
 - a. Describe the general token ring network architecture.
 - b. Explain beaconing.
 - c. Compare the operation of the token bus network to the token ring network.
3.
 - a. Describe what appears after typing the command ipconfig/all at the Window command prompt. What information appears in the “Command Prompt” window after you type “ping 192.168.1.1” (or any similar IP address) right after the prompt command and click ENTER?
 - b. Explain masking and subnetting.
 - c. What does it mean for a bridge to be an active device?
4.
 - a. How are wireless routers used?
 - b. What is the encapsulation process?
 - c. Identify three responsibilities of the network access layer.
5.
 - a. Describe the ARP and RAAP protocols.
 - b. Identify three important characteristics of IPv4 and
 - c. Identify three important characteristics of IPv6.

THIRD SET OF ASSIGNMENTS

Assignment-II = 5 Marks

PART- C

1. List out the various reasons for the present scenario of Indian telecommunication Industry. Comparing to the global scenario, evaluate the contributions of the above cited reasons.
2. India is the second largest country in terms of subscribers base in the world and also very highly ranked in terms of ARPUs in spite of lowest call tariffs in the world. Cite out the reasons for the same.
3. Explain and discuss NGN, IMS, and WiMax and their usage, scope and market in modern telecommunication systems with respect to Indian Environment.

4. Explain the concept of Fixed Mobile Convergence (FMC). Discuss how India is placed viz a viz on global scenario to carry out FMC.
5. Explain and differentiate GSM and CDMA technologies. Also discuss the Indian telecom infrastructure for the two technologies.

FOURTH SET OF ASSIGNMENTS

Assignment-IV = 2.5 Each Case Study

CASE STUDY - I

The Company: Analysts International

Analysts International is a premier information technology services company that serves more than 900 corporate and governmental clients. The company integrates expertise into technology applications with an understanding of business issues to help clients make informed decisions about technology and information strategy.

The Challenge: Timely Development of a Highly Visible Application

A major software provider in the e-business and ERP arena holds an annual conference and user exchange, bringing together over 5,000 participants who share a common interest in the software provider's various modules. Analysts International planned to use the conference to present its **mobile computing** and m-services solutions. As a demonstration of its m-services capabilities, Analysts International approached the popular e-business and ERP software provider with the concept of providing attendees with a Palm OS®-based application that would replace the paper-based conference agenda. This application would also offer enhanced access to information about the conference's estimated 500 sessions.

The Solution: Pumatech's Satellite Forms Software

Using Satellite Forms software, Analysts International took a total of three weeks to develop the application and databases. Satellite Forms provided the ability for multiple views and access paths to the base session information, while also enabling users to add selected sessions to the native Palm OS calendar. The rollout was accomplished over the five-day conference, with the final application being provided to an estimated 500 of the 5,000 attendees who were carrying their own Palm OS-based devices. Satellite Forms provided Analysts International with the tool to quickly meet the demand to design a comprehensive application. One feature that the company especially appreciated was the ability to rapidly share its preliminary prototypes with clients for review and approval.

The solution was developed as a value-added service to a strategic alliance partner. The partner was excited by the overwhelming positive responses about the application. In addition, the traffic to Analysts International's booth at the show proved to be significantly higher with attendees who were interested in both the ability to use the software at other functions they attend and in utilizing the company's **mobile computing** practice to address their unique problems.

Questions

1. The Analysts International expects you to review its needs for the new system and suggest the required telecom and IT infrastructure.
2. Prepare a spread sheet that details the approximate cost to set up the above suggested system.
3. What are the short comings of the above solution?

CASE STUDY-II

You are interested in starting your own Music Store. You need to design and build a network and computing solution for your stores. You have done some initial planning and you will start with two stores (but you plan to add two more stores across town within one year). Your store will sell new and used music and allow customers to get “online” in your stores and download music. You also will offer classes on how to setup music downloads and configure MP3 devices. You took computer networking courses in college and you feel you can tackle this solution yourself. Upon initial planning, you have identified the following requirements for your network:

- Connects three office computers and one computer used for Point-of-Sale (POS) services at each of your stores. You also want six (6) computers in the lobby/store where patrons can download music and you can run “training classes” for people to learn about using MP3 players and get other basic information. The two offices have to be connected into one cohesive network, sharing POS services and other critical company information. You also need to provide a “hand out” casual area for people to stop in and discuss music and connect wirelessly to the Internet (you might even offer free coffee to entice people to come in to your store).
- Provides adequate security for all of the company communications and documents. All POS services must be protected. All general network access should be segmented from the company POS services.
- Provides for centralized printing.
- Supports the eventual addition of other stores to the network
- Provides customers with a general information Website and a secure Website where clients can buy services, and products
- Provides for centralized management and control of the computers in the two stores, so that you can maintain the network from off-site
- Provides for long-term cost effectiveness
- Provides a suite of software tools for the employees to effectively communicate and a POS solution for the stores

The company does not have any equipment. The two stores are within a suburban area that has current technological infrastructures and related technology offerings. The stores will need a sales system and print services for invoices.

Questions

1. Surface your proposal including costs for computing equipment, network infrastructure, network servers, printers, and related hardware, software, and accessories. Include as much detail as possible as well as justification as to your selections.
2. Your plan should include a complete network and computer system that meets these requirements and future expansion plans. Prepare graphical illustration and explain your physical network and computer design as well as the logical network design (server installation, domain layout, etc.).