VALLIAMMAI ENGINEERING COLLEGE

S.R.M. Nagar, Kattankulathur

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Sub Code : CP7101 **Sub Name**: Design and Management of Computer Networks

UNIT-I

INTRODUCTION TO NETWORK MANGEMENT

PART-A

1. What is network analysis? Give its purpose
2. Draw the information flow between network analysis, architecture and design?
3. What are hierarchy and interconnectivity? What its uses?
4. List the importance of network analysis.
5. What is content delivery network?
6. What are the performance characteristics?
7. What are the different types of Requirements?
8. What are network services?
9. What is Audit Trials?
10. What are the two major tasks to ensure supportability?
11. What are the types of applications?
12. What are the device types?
13. Define. Network Metrics
14. What is level of funding?
15. Distinguish between Service Request and Service Requirements.
16. What are the user requirements?
17. What are the four categories of network management?
18. Draw the template for requirements specification?
19. What are enterprises Requirements?

20. What are the factors affect the post implementation costs?

PART-B

1. Explian in detail about the overview of Analysis, Architecture and Design?
2. Explain Network hierarchy and diversity in detail with suitable diagram?
3. Discuss system methodology and service description in detail?
4. Explain various performance characteristics of a network system in detail?
5. Describe User requirements in detail?
6. Explian Application requirements in detail?
7. Describe Device requirements in detail?
8. Describe the Network requirements in detail?
9. Explian in detail about Requirement Specification and Mapping?
10. Explian Network supportability in detail?

UNIT-II REQUIREMENTS ANALYSIS

PART-A

1. What are the types of Network project?
2. Draw the requirement analysis process?
3. What are the successful communication techniques?
4. What is test bed? Give its uses?
5. What are the service metrics for RMA?
6. What are the measurement tools?
7. What are the goals of Characterizing behavior?
8. What are types of behavior?
9. What are the types of threshold?
10. Define Uptime and Downtime?
11. What are the types of applications?
12. What are the tasks should be consider before measuring uptime?

13. What is the need for downtime at time of requirement analysis?
14. What are the general threshold and limit for delay?
15. What are the sources of delay?
16. What are the types of data rates?
17. What are the three categories of supplemental performance requirements?
18. Draw the reliability block diagram?
19. What is need of Questionnaire in Requirements specification?
20. What are the uses of Requirement mapping?

PART-B

1. Explain in detail about the Gathering and listing requirements?
2. Explain service metrics development in detail?
3. Discuss characterizing behavior in detail?
4. Explain the method of developing RMA requirements in detail?
5. Describe the method of developing Delay requirements in detail?
6. Explain Requirement analysis process in detail?
7. Describe the method of developing supplemental performance requirements in detail?
8. Explain the method of developing capacity requirements in detail?
9. Explain in detail requirements specification?
10. Describe the requirements mapping in detail?

UNIT-III FLOW ANALYSIS

PART-A

1. What are the types of Flows?
2. What are the common flow characteristics?
3. What is critical flow?
4. What are the processes for identifying and developing flows?
5. What you meant by Flow aggregation point?

6. What are the uses of developing a profile?
7. Draw the consolidating flows using flow aggregation point?
8. What is meant by data source?
9. What is meant by data sinks?
10. Draw the example diagram for data source and sink?
11. What is meant by flow models?
12. What are the types of flow models?
13. What are the uses of peer to peer flow models?
14. What is Flow prioritization?
15. What are the common characteristics for Flow prioritization?
16. Define flow specification?
17. What are the three categories of Flow specification?
18. Draw the flow models for flow type one?
19. What is capacity plan and service plan?
20. What are the four types of flows analysis?

PART-B

1. Explain in detail about the types of Flows?
2. Explain in detail about identifying and developing flows?
3. Discuss data sources and sinks in detail?
4. Explain the Flow models in detail?
5. Describe the Flow specification and Flowspec algorithm in detail?
6. Explain critical flows in detail?
7. Describe the Flow prioritization in detail?
8. Explain the four types of flows in flow analysis in detail?
9. Explain in detail about performance envelope from requirement analysis?
10. Explain the flow map in detail?

UNIT-IV NETWORK ARCHITECTURE

PART-A

1. Distinguish between Network Architecture and Network Design
2. Distinguish between network Functions and Network Mechanisms
3. List the mechanism for network management
4. What are the mechanisms considered for network security
5. Tabulate the Dependencies between Performance Mechanisms
6. What is Reference Architecture?
7. What is Topological Model?
8. What do you meant by Flow based architectural model?
9. Define. Service Provider Architectural model
10. What is end-to-end architectural model?
11. What are the uses of Architectural Models?
12. Define. Sub-netting and Super netting
13. What is Route Aggregation?
14. List the recommendations for choosing and applying routing protocols for a network.
15. List the Network Management Hierarchy
16. What is FCAPS model?
17. Define. In-band and Out-band Management
18. What do you mean by Threat Analysis?
19. Distinguish between Network Security and Network Privacy
20. What are Tunneling and Encapsulation?

PART-B

1. Explain various component architecture of a network with neat sketches
2. Explain the process of developing Architectural Models for a network system
3. Explain the Flow based Architectural Model with a neat sketch

4. How architectural models combined to provide a comprehensive architectural view of the network? Explain
5. Explain the Addressing and Routing mechanism used in a network.
6. Explain the process of applying the Addressing & the Routing Strategies in a network.
7. Discuss about the Network Management Mechanisms in detail
8. Explain the various architectural considerations for network management process
9. Discuss in detail about the Performance Mechanisms used in a network.
10. Explain the Security and Privacy architecture with neat sketches.

UNIT-V NETWORK DESIGN

PART-A

11. List the characteristics of structured network design process
12. Why is it important to use a structured, systematic method for designing networks? What problems can occur if such methods are not used?
13. Why is it important to explore divisional and group structures of an organization when starting a network design project?
14. Define. Scalability
15. What are some challenges designers faces when designing for scalability?
16. Distinguish between Throughput and Bandwidth
17. What is Runt frame?
18. What is Reconnaissance Attacks?
19. What are design metrics?
20. In a full-mesh topology, if N is the number of routers/switches in the network, what is the total number of links in the network?
21. What does physical security mean? What are some facets of physical security?
22. What are the benefits of having hierarchy in addressing and routing models?
23. What is the difference between a security plan and a security policy? How do these two relate to each other?

24. What are the pros and cons of out-of-band network management versus in-band network management?
25. What are the most important criteria for selecting internetworking devices?
26. Why are QoS features often necessary in LAN switches and routers?
27. What are the most important criteria for selecting a WAN service provider?
28. List any four typical goals for a network design testing project
29. What is regression testing? Why is regression testing usually an important part of a network testing project?
30. How does multicast routing differ from uncast routing?

PART-B

1. Compare and contrast the top-down network design method with the PDIOO method
2. Explain the network design process with neat sketches
3. Explain various network topology design models with suitable examples
4. Discuss in detail about Virtual Private Networks (VPN)
5. Discuss the network security related to network topologies
6. Compare and contrast distance-vector and link-state routing. If you were designing a new routing protocol, which would you use and why?
7. Explain the concept of Network Security Design in detail
8. List and briefly describe four tradeoffs that often must be made in order to achieve good network security
9. Explain the architecture of Network Management with a neat sketch.
10. Explain the process of Writing and Implementing a Test Plan for Your Network Design