

Task
Provide short answers to the following six questions. Your answers should be clear, concise and to the point. Prepare single document (MS Word or PDF) along with title page and submit it online using Turnitin.

Question 1: The address depletion of IPv4 and other shortcomings of this protocol prompted a new version of IP known as IPv6. Explain the advantages of this new IPv6 when compared to IPv4? (3 Marks)

Question 2: Migrating from IPv4 to IPv6 is known as transition from version 4 to version 6 and requires proper strategies to handle this transition. Explain each of the strategies for this migration process using appropriate examples. (4 Marks)

Question 3: In a peer-to-peer (P2P) network, Internet users that are ready to share their resources become peers and form a network. Describe the differences between centralised and decentralised P2P networks? Discuss the advantages and disadvantages of both networks. (3 Marks)

Question 4: What is a Distributed Hash Table (DHT) and how is it used in P2P networks? Briefly explain how a DHT works with an example of a P2P network. (3 Marks)

Question 5: In the client-server paradigm, explain which entity provides the service and which entity receives the service. Why should a server be run all the time, but a client can be run when it is needed? (3 Marks)

Question 6: When an HTTP server receives a request message from an HTTP client, how does the server know when all headers have arrived and the body of the message is to follow? (4 Marks)

Online submission via Turnitin is required for this assignment. Details will be provided by your subject lecturer.

Rationale

This assessment consists of three questions assessing a basic understanding of network & data communication models, next generation IP and application layer paradigm. This assessment covers the following learning objectives:

- define and explain various Internet technologies;
- describe and analyse the role and importance of Internet technologies in the modern world; and
- Explain how different application layer services such as client-server and peer-to-peer paradigms work in the Internet.

Marking criteria

The following marking criteria will be used for this assessment item.

Question	Marks
Question 1 - Next generation IP, Network models, data communication models, application layer	3
Question 2 - Next generation IP, Network models, data communication models, application layer	4
Question 3 - Peer-to-Peer paradigm, Network models, data communication models, application layer	3
Question 4 - Peer-to-Peer paradigm, Network models, data communication models, application layer	3
Question 5 - Network models, application layer	3
Question 6 - Network models, application layer	4
Total	20

Marking Guide

The following marking guide will be used while assessing each component of this assessment item.

Question	HD (>84%)	DI (84% - 75%)	CR (74% - 65%)	PS (64% - 50%)	FL (<50%)
1. (3 Marks)	Thoroughly detailed and accurate explanation of advantages of IPv6 over IPv4. Adheres to word or page length criteria, font spacing, and APA or similar citation format are correct.	Accurate and detailed description of advantages of IPv6 over IPv4 with negligible flaws. Exceed word or page limit criteria by less than 1 page. font or spacing and APA are correct.	Mostly accurate description of advantages of IPv6 over IPv4 with some specific detail. Exceed word or page limit criteria by 1 page. Font, spacing, or APA format is mostly correct.	Basic description of advantages of IPv6 over IPv4, identifies key features only. Exceed word or page limit criteria by over 1 page. Font, spacing, and citation format are incorrect or needs refinement.	Incomplete, inadequate or no answer of the question No references given.
2. (4 Marks)	Thoroughly detailed and accurate explanation of all strategies for migration process, supported by appropriate examples. Adheres to word or page length criteria, font spacing, and APA or similar citation format are correct.	Accurate and detailed explanation of all strategies for migration process, supported by some examples. Exceed word or page limit criteria by less than 1 page. font or spacing and APA are correct.	Mostly accurate explanation of all strategies for migration process, supported by some examples. Exceed word or page limit criteria by 1 page. Font, spacing, or APA format is mostly correct.	Basic explanation of all strategies for migration process, limited use of supporting examples. Exceed word or page limit criteria by over 1 page. Font, spacing, and citation format are incorrect or needs refinement.	Incomplete, inadequate or no answer of the question No references given.
3. (3 Marks)	Thoroughly detailed and accurate comparison of 2 types of P2P networks. Comprehensive discussion of their advantages and disadvantages. Adheres to word or page length criteria, font spacing, and APA or similar citation format are correct.	Accurate and detailed comparison of 2 types of P2P networks. Substantial discussion of their advantages and disadvantages. Exceed word or page limit criteria by less than 1 page. font or spacing and APA are correct.	Mostly accurate comparison of 2 types of P2P networks. Sound discussion of their advantages and disadvantages. Exceed word or page limit criteria by 1 page. Font, spacing, or APA format is mostly correct.	Some comparison of 2 types of P2P networks. Basic explanation of their advantages and disadvantages. Exceed word or page limit criteria by over 1 page. Font, spacing, and citation format are incorrect or needs refinement.	Incomplete, inadequate or no answer of the question No references given.
4. (3 Marks)	Thoroughly detailed and accurate description of DHT and clear explanation of how it works, supported by an appropriate example. Adheres to word or page length criteria, font spacing, and APA or similar citation format are correct.	Detailed and accurate description of DHT and clear explanation of how it works, supported by an appropriate example. Exceed word or page limit criteria by less than 1 page. font or spacing and APA are correct.	Mostly accurate description of DHT and sound explanation of how it works, supported by a relevant example. Exceed word or page limit criteria by 1 page. Font, spacing, or APA format is mostly correct.	Basic description of DHT and explanation of how it works, supported by an example. Exceed word or page limit criteria by over 1 page. Font, spacing, and citation format are incorrect or needs refinement.	Incomplete, inadequate or no answer of the question No references given.
5. (3 Marks)	Thoroughly detailed and accurate explanation of different roles in the client-server paradigm. Adheres to word or page length criteria, font spacing, and APA or similar citation format are correct.	Detailed and accurate explanation of different roles in the client-server paradigm. Exceed word or page limit criteria by less than 1 page. font or spacing and APA are correct.	Mostly accurate explanation of different roles in the client-server paradigm. Exceed word or page limit criteria by 1 page. Font, spacing, or APA format is mostly correct.	Basic explanation of different roles in the client-server paradigm. Exceed word or page limit criteria by over 1 page. Font, spacing, and citation format are incorrect or needs refinement.	Incomplete, inadequate or no answer of the question No references given.
6. (4 Marks)	Thoroughly detailed and accurate explanation of HTTP client-server process. Adheres to word or page length criteria, font spacing, and APA or similar citation format are correct.	Detailed and accurate explanation of HTTP client-server process. Exceed word or page limit criteria by less than 1 page. font or spacing and APA are correct.	Mostly accurate explanation of HTTP client-server process with some detail. Exceed word or page limit criteria by 1 page. Font, spacing, or APA format is mostly correct.	Basic explanation of HTTP client-server process. Exceed word or page limit criteria by over 1 page. Font, spacing, and citation format are incorrect or needs refinement.	Incomplete, inadequate or no answer of the question No references given.

Presentation

Your assessment should be submitted in either MS Word or PDF format. Please do not submit your assignment in any other format and also do not submit multiple copies of the assessment. Please use A4 page size with Times New Roman / Arial / Calibri font and use font size 11 or 12. Following should be included as minimum requirements for the assessment.

- Title**
- Student Name and Student ID**
- Student Email Contact**
- Answer all Questions**

References - You must use APA referencing style for all cited material you have used in your work.