

Answer the following questions in essay format:

1. Explore the differences and advancements between LTE and 5G network architectures. Focus on the core network components, radio access technologies, and the overall system design. Key points to cover:
  - Evolution from LTE to 5G
  - Core Network Differences
  - Radio Access Technologies: Explain improvements in spectral efficiency, latency, and data rates

Answer the following questions in essay format:

2. Explain various techniques used to optimize the performance of LTE networks. Focus on methods to enhance LTE network efficiency, capacity, and coverage. Some key points:
  - Carrier Aggregation
  - How MIMO technology improves signal quality and throughput

Answer the following questions in essay format:

3. Explain the significance of Orthogonal Frequency Division Multiple Access (OFDMA) in LTE technology. Key points to address:
    - Basics of OFDMA
    - Resource Allocation: how OFDMA enables dynamic and flexible resource allocation in LTE.
    - Impact on Throughput and Latency.
    - Compare OFDMA with CDMA and TDMA in terms of efficiency and scalability
- The assignment must be submitted in a minimum 3-page and maximum of 5-page document (Arial 12 pt. font, double space) excluding the reference page.
  - The document must be in PDF format.
    - Cite references.
  - Use of diagrams and figures is highly recommended. Label diagrams and figures properly

<b>Question 1</b>  <b>Maximum Points = 3</b>	Main points lack detailed development. Ideas are vague with little evidence of critical thinking.	Main points are present with limited detail and development. Some critical thinking is present.	Main points well developed with quality supporting details and quantity. Critical thinking is weaved into points.	Main points well developed with high quality and quantity support. Reveals high degree of critical thinking.
	0	1	2	3
<b>Question 2</b>  <b>Maximum Points = 3</b>	Main points lack detailed development. Ideas are vague with little evidence of critical thinking.	Main points are present with limited detail and development. Some critical thinking is present.	Main points well developed with quality supporting details and quantity. Critical thinking is weaved into points.	Main points well developed with high quality and quantity support. Reveals high degree of critical thinking.
	0	1	2	3

<b>Question 3</b>  <b>Maximum Points = 3</b>	Main points lack detailed development. Ideas are vague with little evidence of critical thinking.	Main points are present with limited detail and development. Some critical thinking is present.	Main points well developed with quality supporting details and quantity. Critical thinking is weaved into points.	Main points well developed with high quality and quantity support. Reveals high degree of critical thinking.
	0	1	2	3
<b>Document Format</b>  <b>Max Point = 1</b>	The assignment must be submitted in a minimum 3-page and maximum of 5-page document (Arial 12 pt. font, double space) including the reference page.	The document must be in PDF format.	Filename naming convention must be: <b><i>studentlastname-studentfirstnameA1.pdf</i></b>	Cite references
	0.25	0.25	0.25	0.25