

Network Model

Reference Questions:

1. Explain how the concept of encapsulation and decapsulation is applied in network reference models.
2. Differentiate between the OSI and TCP/IP reference models.
3. With a neat diagram, describe the functions of all layers of the OSI reference model.
4. Explain why the TCP/IP model is considered more practical compared to the OSI model.
5. A self-driving car must exchange data with traffic lights and nearby vehicles in milliseconds. Which layers of the OSI/TCP-IP models play the most critical role, and why?
6. Your university plans to connect campuses in different cities. Which reference model would you recommend (OSI/TCP-IP/Hybrid), and how would you justify it from an engineering perspective?
7. Imagine if the Presentation Layer were removed from the OSI model. What real-world problems might occur in communication systems (e.g., web browsing, video streaming)?
8. Consider a video call application like Zoom. Map its functioning to the layers of the TCP/IP model, and explain how each layer supports it.
9. Design your own simplified 3-layer reference model for a smart home IoT system (e.g., smart fridge, lights, sensors). Name the layers and describe their functions.
10. What are headers and trailers, and how do they get added and removed? Name some services provided by the application layer in the Internet model (TCP/IP Model).
11. Explain Node to node, End to End, Process to Process delivery and which layer is responsible for those.
12. Write three protocols of each layer and explain why they are required.