

Assignment Type:	Assignment	Collaboration Policy:	Default
Assignment Title:	Networking Models		

Protocols and Standards

1. [5 / __ / 0] What RFC covers the IETF standards process?

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2. [10 / __ / 0] Scenario: You are a network engineer at a private corporation, and are working on a new RFC as part of your job at the company. What RFCs should you consult regarding your intellectual property concerns? Use complete sentences; spelling and grammar count.

3. [10 / __ / 0] List the goals of the Internet Standards Process?

4. [5 / __ / 0] When did RFCs begin, and from what networking project did they originate from? Use complete sentences; spelling and grammar count.

Protocol Sequence Diagrams

5. [10 / __ / 0] Draw a protocol sequence diagram based on Alice and Bob exchanging the following statements in order.

- Alice → Bob: Hello
- Alice → Bob: I speak in protocols
- Bob → Alice: I need to be going now
- Bob → Alice: Hello
- Bob → Alice: Me too!
- Alice → Bob: Okay, bye

Alice	Bob

6. [10 / __ / 0] Draw a protocol sequence diagram based on Alice, Bob, and Cedric exchanging the following statements in order.

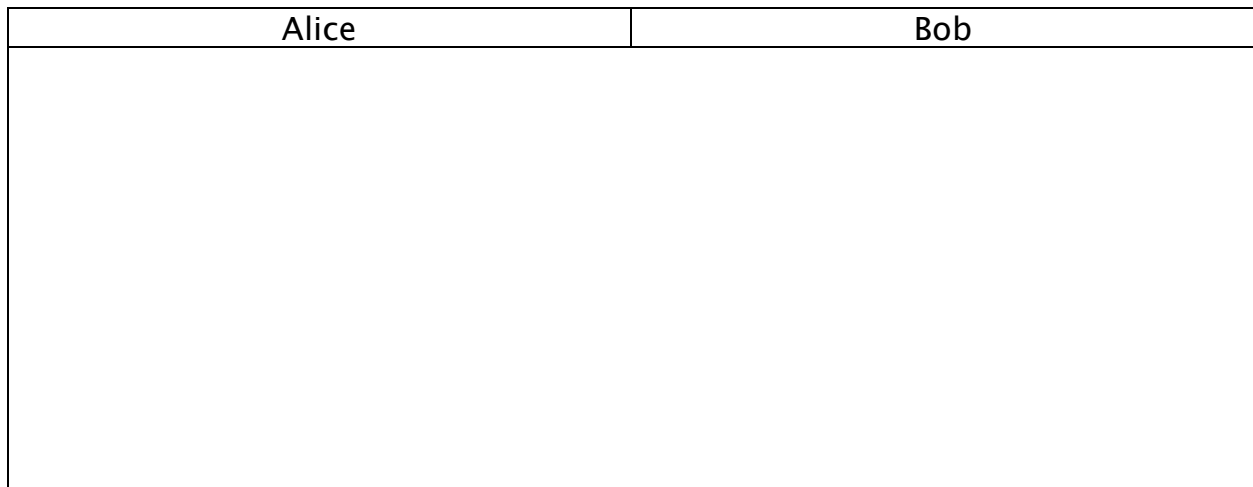
- Bob → Cedric: Hello
- Bob → Cedric: Do you have the time?
- Bob → Alice: Hello, do you have the time?
- Cedric → Bob: Hello
- Cedric → Bob: No, try asking Alice
- Alice → Bob: Yes, it's 11:10.

Alice	Bob	Cedric

Packets

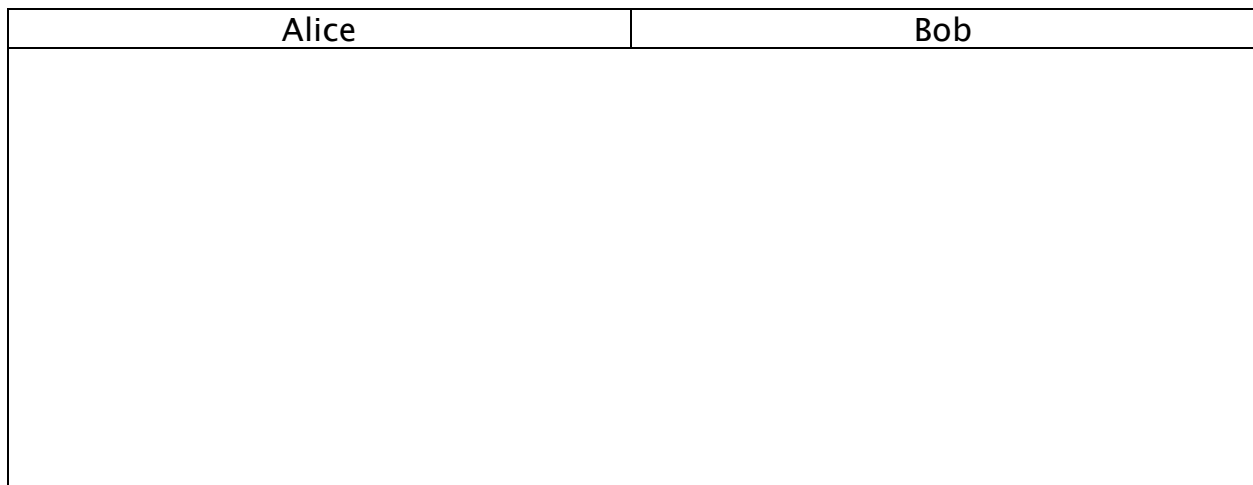
7. [10 / ___ / 0] Draw a protocol sequence diagram based on Alice and Bob exchanging the following packet payloads. Represent a packet as a rectangular box, use dashed lines in the box as separators for the components of a packet. Label each packet header with an *H*, label each packet footer with an *F*. Label each packet payload according to the message being sent.

- Alice → Bob: P1
- Alice → Bob: P3
- Bob → Alice: P5
- Bob → Alice: P2
- Bob → Alice: P4
- Alice → Bob: P6



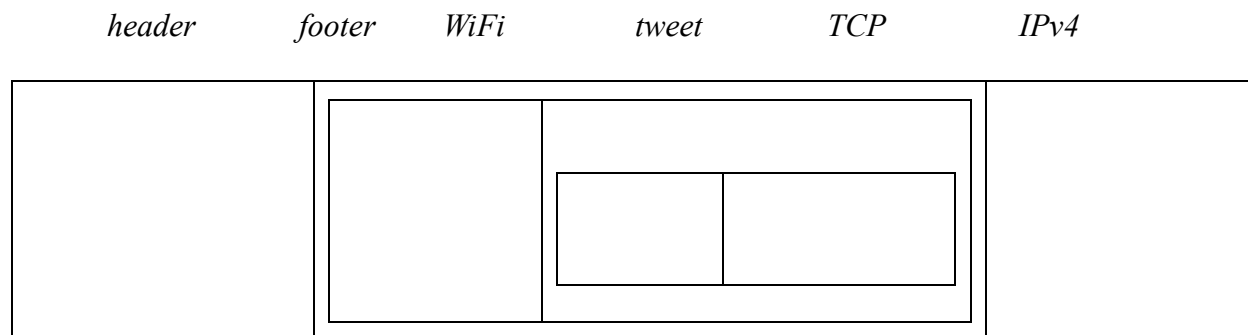
8. [10 / ___ / 0] Draw a protocol sequence diagram based on Alice and Bob exchanging the follow messages. Represent a packet as a rectangular box, and label as in Question 7. Limit a packet's payload size to a maximum of eight characters. A receiver cannot start responding until a complete message has been received.

- Alice → Bob: IPv6 hosts fragment
- Bob → Alice: Makes core fast
- Bob → Alice: Not the core network
- Alice → Bob: And simple



Data Encapsulation

9. [10 / ___ / 0] Label the below encapsulated packet using the below protocol and packet terms, some terms may be used more than once, based on the following scenario. Scenario: You send a Tweet from your phone. Twitter runs over HTTPS, which uses TCP at the Transport layer. Your phone is connected to a WiFi network and has an IPv4 address; IPv4 operates at the Network layer. WiFi is the IEEE 802.11 family of Data Link layer specifications. Of these protocols only WiFi has a footer.



Use the following scenario for Questions 10–11.

Scenario: You are wired into the network in Bancroft Hall and are sending a 2 MB (2,097,152 bytes) image as an email (SMTP Application layer). SMTP uses TCP at the Transport Layer. USNA uses IPv4 on the intranet. The table below lists relevant header and payload sizes in bytes.

Protocol	Header (Bytes)	Payload (Bytes)
Ethernet	-	1500
IPv4	20	-
TCP	40	-

10. [10 / ___ / 0] Calculate the number of packets required to send the email message across the network. Show your work for partial credit.

11. [10 / ___ / 0] Calculate the overall networking overhead percentage for sending the image via email. Show your work for partial credit.