Homework 1 Sp25

- Due Feb 25 at 11:59pm
- Points 5
- Questions 5
- Available Feb 18 at 12am - Feb 25 at 11:59pm
- Time Limit None
- Allowed Attempts 5

Take the Quiz Again

Attempt History

	Attempt	Time	Score
KEPT	Attempt 3	9 minutes	5 out of 5
LATEST	Attempt 3	9 minutes	5 out of 5
	Attempt 2	28 minutes	4 out of 5
	Attempt 1	5,856 minutes	3.5 out of 5

Correct answers are hidden.

Score for this attempt: 5 out of 5
Submitted Feb 24 at 8:15pm
This attempt took 9 minutes.

Question 1
1 / 1 pts

Suppose users share a 157 Mbps link. Also suppose each user requires 744 kbps when transmitting but each user transmits only 0.26 of the time.

Answer the following questions and for the final answer enter the answer like : Question 1a answer + Question 1b answer. For example, if for first part the answer is 10 and for second part is 256, please enter 266

a- When circuit switching is used, how many users can be supported? each 1 Mbps is 1024 kbps

b- Assume we want to use packet switching instead of circuit switching, suppose there are 8 users. Find the probability that at any given time,
exactly 5 users are transmitting simultaneously.

216.11

Quiz submitted

Question 2
1 / 1 pts

Which of the following statements are true regarding the comparison of packet switching and circuit switching? (Choose all that apply)

- [x] Circuit switching may result in inefficient use of network resources during idle periods, as the reserved path remains dedicated even when no data is being sent.
- [ ] Packet switching ensures a constant, predictable bandwidth, making it suitable for real-time applications like voice calls.
- [ ] In packet switching, data is transmitted in fixed-size packets, while in circuit switching, the data is sent as a continuous stream.
- [x] In circuit switching, the setup time is typically longer compared to packet switching, since a dedicated connection needs to be established before communication begins.
- [x] Packet switching provides better fault tolerance because if one route is unavailable, packets can be rerouted via another path.

Question 3
1 / 1 pts

Consider a client and a server connected through one router. Assume the router can start transmitting an incoming packet after receiving its first 69 bytes instead of the whole packet. Suppose that the link rates are 650 byte/s and that the client transmits one packet with a size of 133 bytes to the server. What is the end-to-end delay in seconds with 8 routers between the server and client? Assume the propagation, processing, and queuing delays are negligible.

1.05

Question 4
1 / 1 pts

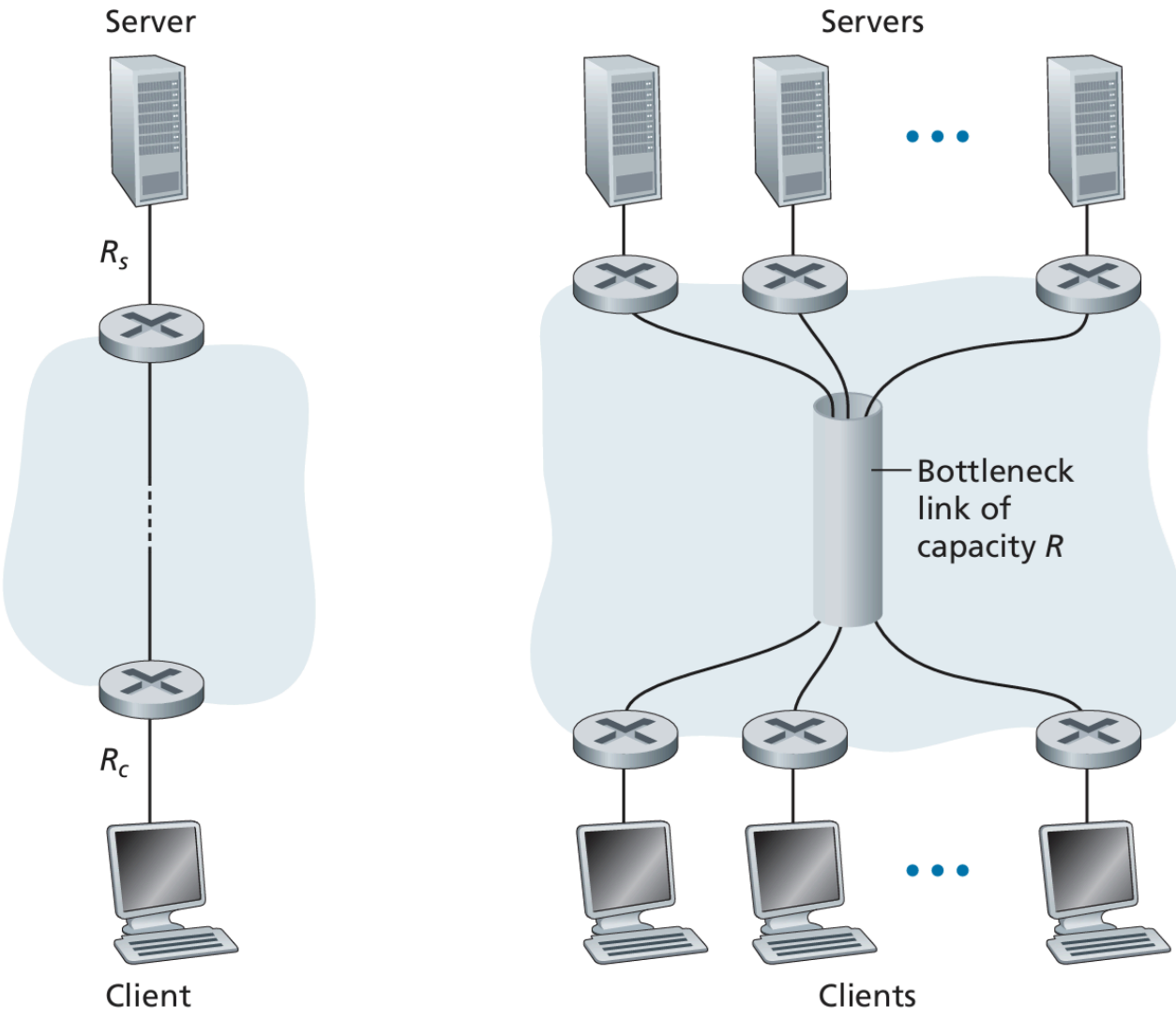
Which of the following protocols are application layer protocols?

- [x] HTTP
- [ ] ICMP
- [ ] UDP
- [ ] TCP
- [x] FTP

Question 5
1 / 1 pts

Suppose that there are 36 client-server pairs.

Denote Rs=38, Rc=90, and R=72 for the rates of the server links, client links, and network link. Assume
all other links have abundant capacity and that there is no other traffic in the network besides the traffic generated by the 36 client-server pairs. Derive What is the total throughput of this system in Mbps?



Quiz submitted

Quiz Score: 5 out of 5