CS241#39 "TCP UDP and DNS Review"

0. Identify the missing pieces to complete Peterson's N=2 solution to the Critical Section Problem.

```
raise my flag

WHAT IS MISSING HERE?
// Do Critical Section stuff
lower my flag
```

1. Identify the missing pieces to complete Dekker's N=2 solution to the Critical Section Problem.

```
raise my flag
while your flag is raised :
  if it's your turn to win :
    WHAT IS MISSING HERE?

// Do Critical Section stuff
set your turn to win
WHAT IS MISSING HERE?
```

2. What is special about listening on port 1000 vs port 2000?

3. What is difference between IPv4 and IPv6?

4. When and why would you use `ntohs`?

5a. If a host address is 32 bits which IP scheme am I most likely using?

5b. If a host address is 128 bits which IP scheme am I most likely using?

6. Which common network protocol is packet based and may not successfully deliver the data?

7. Which common protocol is stream-based and will resend data if packets are lost?

8. Put the following in the correct order: `ACK`, `SYN`, `ACK-SYN` handshake?

9. Which one of the following is NOT a feature of TCP?

Packet re-ordering
Flow control
Packet re-tranmission
Simple error detection
Encryption

10. What protocol uses sequence numbers?

What is their initial value? And why?

11. What are the minimum network calls are required to build a TCP server? What is their correct order?

12. What are the minimum network calls are required to build a TCP client? What is their correct order?

13. When would you call `bind` when creating a TCP client?

14. What is the purpose of each of the following?

`socket`

`bind`

`listen`

`accept`

15. Which of the above calls can block, waiting for a new client to connect?

16. What is DNS? What does it do for you? Which of the CS241 network calls will use it for you?

17. For `getaddrinfo`, how do you specify a server socket?

18. Why may `getaddrinfo` generate network packets?

19. Which network call specifies the size of the allowed backlog?

20. Which network calls returns a new filedescriptor?

21. When are passive sockets used?

22. When is `epoll` a better choice than `select`? When is `select` a better choice than `epoll`?

23. Will `write(fd, data, 5000)` always send 5000 bytes of data? When can it fail?

24. What are the minimum network calls required to send a UDP packet?

25. What are the minimum network calls required to receive a UDP packet?