

Computer Networks 2021 Quiz 1

FAN: worr0028

NOTE: Each student's work unit is unique. You must use the work that has been generated for your FAN. If you do not, then you will fail this work unit.

NOTE: You must record your answers in the answer file EXACTLY as required, and commit and make sure your changes have been pushed to the github server, as they will otherwise not be counted.

NOTE: The topic coordinator will periodically run the automatic marking script, which will cause a file called quiz1-results.pdf to be updated in your repository. You should check this file to make sure that your answers have been correctly counted. That file will contain the time and date that the marking script was last run, so that you can work out if it has been run since you last changed your answers. You are free to update your answers as often as you wish, until the deadline for the particular work unit.

1 Quiz#1: Chapters 1 – 3

For each question, you must record your answer in the quiz1-answers.txt file in your git repository. Each statement is either true or false. You must record 't' if you think the statement is true, or 'f', if you think that the statement is false. Your answer must be lower case. Uppercase answers will be marked incorrect. For example, if you believed that the answer to the following question was potato, you would put the word potato at the end of the rj= line in the file quiz1-answers.txt.

Question#	Description
rj	The potato is a white-flesh starchy vegetables from which hot chips are made

The entry in quiz1-answers.txt would thus look like:

```
# Question 'rj': The potato is a white-flesh starchy vegetables from which hot chips are made
rj=t
```

Templates for each answer are provided in `quiz1-answers.txt` for your convenience.

Are the following statements true or false?

1.1 Question ab: True or False?

In 802.11, the term active scanning refers to the way in which access points actively scan for new clients

1.2 Question ac: True or False?

A unique socket number must be provided by the application when calling the `socket()` function to create a socket

1.3 Question ad: True or False?

The larger the bandwidth delay product, the more bits a sender must send before receiving acknowledgement

1.4 Question ae: True or False?

Selective Acknowledgement involves sending ACKS when something that might affect throughput occurs, thus reducing the number of ACKs that need to be sent

1.5 Question af: True or False?

It is possible for the aggregate throughput through a switch to be many times the maximum bandwidth of each of its ports

1.6 Question ag: True or False?

For a host to request a virtual circuit to be established, it is also required that the network administrator configures the virtual circuit

1.7 Question ah: True or False?

4B/5B encoding allows the encoding of control signals using spare valid 5-bit sequences

1.8 Question ai: True or False?

Frequency Division Multiplexing divides a communications channel based on radio frequency

1.9 Question aj: True or False?

For long-distance oceanic internet cable links minimising the bandwidth delay product is a primary goal

1.10 Question ak: True or False?

Only up to the network layer is required to run on all nodes in the OSI model

1.11 Question al: True or False?

The medium network links use is a common way to characterise them

1.12 Question am: True or False?

HDLC avoids the need to send extra bits when long sequences of 1s are sent

1.13 Question an: True or False?

In 802.11, if a client receives a beacon, it does not need to send a probe frame before sending an access request

1.14 Question ao: True or False?

The original Wi-Fi standard was limited to 11Mbps per second

1.15 Question ap: True or False?

DDCMP is a bit-oriented framing protocol used in DECNet

1.16 Question aq: True or False?

The exposed node problem occurs when a transmitter can hear transmissions from a node which is too far away to interfere with the reception of the first node

1.17 Question ar: True or False?

ISDN is many times faster than dial-up connections

1.18 Question as: True or False?

In a virtual-circuit network, a virtual connection between the source and destination host must first be established, before data can be sent between them

1.19 Question at: True or False?

In 10Base2, the 2 refers to the speed, i.e., 2Mbit/sec

1.20 Question au: True or False?

PPP framing can only be used to encapsulate Internet Protocol frames

1.21 Question av: True or False?

In the stop-and-wait protocol only one data frame can be pending acknowledgement at a time

1.22 Question aw: True or False?

A network should hide errors that occur during transmission

1.23 Question ax: True or False?

The network API provides the syntax by which network services can be accessed

1.24 Question ay: True or False?

The maximum sequence number must be larger than double the Sending Window Size minus 1

1.25 Question az: True or False?

An Ethernet adaptor will normally receive all frames addressed to its own Ethernet address, the broadcast address and any subscribed multi-cast addresses

1.26 Question ba: True or False?

Greater bandwidth implies a faster network

1.27 Question bb: True or False?

The Sliding Window protocol is more efficient than stop-and-wait for high bandwidth delay product links

1.28 Question bc: True or False?

In 802.11, access points respond to client association requests with an association response frame

1.29 Question bd: True or False?

Packet-switched networks process packets and streams rather than frames

1.30 Question be: True or False?

NRZ encoding includes an explicit clock that can be used by clock recovery logic

1.31 Question bf: True or False?

When a packet is sent on a connectionless network, the sender has to provide the information for the path the packet should take

1.32 Question bg: True or False?

Wi-Fi power management is the responsibility of the operating system, with Wi-Fi focusing on the media access control and security mechanisms

1.33 Question bh: True or False?

The Internet Architecture forms an hour-glass shape with the Internet Protocol as the focal point

1.34 Question bi: True or False?

The connect() function does not return until the TCP connection has been successfully established

1.35 Question bj: True or False?

In the Internet Architecture the application layer directly interfaces to the transport, IP and (sub-)network/link layer.

1.36 Question bk: True or False?

The Internet Protocol error detection uses a 16-bit value

1.37 Question bl: True or False?

The network layer is responsible for network framing

1.38 Question bm: True or False?

The hidden node problem occurs when the transmission of two or more nodes can be received by some other node, but the transmitting nodes cannot receive the transmissions of each other

1.39 Question bn: True or False?

Error detection involves adding one or more extra bits to a frame whose values are dependent on the values of all of the other bits in the frame

1.40 Question bo: True or False?

Point-to-point and multiple access are two kinds of packet addressing

1.41 Question bp: True or False?

The broadcast address on an Ethernet network consists of all 1s

1.42 Question bq: True or False?

host-to-host connectivity is another way to describe broadcast

1.43 Question br: True or False?

Only if the sequence number less than the Largest Acceptable Frame it will be accepted

1.44 Question bs: True or False?

Protocols must be inter-operable for them to serve their primary purpose

1.45 Question bt: True or False?

The accept() function carries out a passive open

1.46 Question bu: True or False?

Only four repeaters can be used in a single Ethernet cable path

1.47 Question bv: True or False?

Increased separation of software and hardware in network devices is powering network innovation

1.48 Question bw: True or False?

Error correction codes typically incur too high an overhead to be attractive

1.49 Question bx: True or False?

Bluetooth is a wireless technology often used to connect peripherals, like headphones, to cellular network towers

1.50 Question by: True or False?

In a virtual-circuit network, each switch must maintain a table of virtual-circuits

1.51 Question bz: True or False?

Interference is a much greater problem for wireless communications than for modern cabled switched networks

1.52 Question ca: True or False?

Protocols define the interface between layers in a network stack

1.53 Question cb: True or False?

Switches examine the header of a packet to decide on which ports to forward the packet

1.54 Question cc: True or False?

If a sender does not receive an acknowledgement after a reasonable amount of time, it resends the acknowledgement.

1.55 Question cd: True or False?

A client normally selects the local port number it uses when making a connection.

1.56 Question ce: True or False?

One of the ways that Bluetooth reduces power consumption is through allowing slave devices to communicate directly with each other, without requiring re-transmission through the master device

1.57 Question cf: True or False?

The stop-and-wait protocol relies on timeouts if a data frame or ACK frame is lost

1.58 Question cg: True or False?

For large file transfers latency is more important than bandwidth

1.59 Question ch: True or False?

Each Ethernet adaptor manufacturer is allocated address prefixes that they use to allocate Ethernet addresses to the network adaptors that they manufacture

1.60 Question ci: True or False?

Sequence numbers can be reused throughout the life of a connection

1.61 Question cj: True or False?

If the additional bits transmitted to provide error detection match a specific expected value, then an error has been detected

1.62 Question ck: True or False?

Ethernet addresses are 6 bytes long

1.63 Question cl: True or False?

The maximum length of an Ethernet is based on limiting the maximum transmission time of a frame

1.64 Question cm: True or False?

A network is created by the operating system and allocated to the appropriate network application

1.65 Question cn: True or False?

Modulation is the process of modifying a signal, typically the frequency, amplitude or phase

1.66 Question co: True or False?

Virtual-circuits are not connection oriented, as they use virtual connections in place of physical ones

1.67 Question cp: True or False?

The listen() function is called by a server each time it wishes to listen for a new connection

1.68 Question cq: True or False?

The TCP port number must be discovered using ARP before an HTTP request can be made

1.69 Question cr: True or False?

The 802.11 distribution system requires that at least one client is within range of each pair of access points in a given system, so that frames can be relayed between the access points.

1.70 Question cs: True or False?

Electrical interference and thermal noise are common sources of bit errors

1.71 Question ct: True or False?

In an Ad-hoc wireless network messages may be forwarded via several nodes to reach their destination

1.72 Question cu: True or False?

Spread-spectrum makes interference worse, because the signal is spread over a wider frequency band, and thus can interfere with more frequencies

1.73 Question cv: True or False?

When using the Sliding Window Protocol, the sender has to be willing to buffer up to LFS (Last Frame Sent) frames

1.74 Question cw: True or False?

CRCs can be selected that detect all single-bit, double-bit errors, as well as all odd numbers of errors

1.75 Question cx: True or False?

Source routing is one of the most common approaches to switching and forwarding on modern networks