Computer Networks 2021 Quiz 1

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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?

If a sender does not receive an acknowledgement after a reasonable amount of time, it may re-transmit the original frame

1.2 Question ac: True or False?

BISYNC uses special sentinel characters to identify where the data portion of a frame starts and end

1.3 Question ad: True or False?

A bit transmitted at a speed of 1Mbps would have an effective width of 1 micro second

1.4 Question ae: True or False?

The Last Frame Sent minus the Last Acknowledgement Received must be no larger than the Sliding Window Size

1.5 Question af: True or False?

The socket() call can be used to create both stream and datagram sockets.

1.6 Question ag: True or False?

A single request to fetch a URL requires more than a dozen packets to be sent and received

1.7 Question ah: True or False?

Most Bluetooth devices, especially computers, implement only a single profile

1.8 Question ai: True or False?

The primary challenge that Wi-Fi has to solve is to mediate access to the wireless communications medium

1.9 Question aj: True or False?

Interference is much less of a problem for wireless communications, because each wireless device on a network normally operates on a different frequency

1.10 Question ak: True or False?

Processing is increasingly occurring in access networks, with it becoming possible to even call some "mini data centres"

1.11 Question al: True or False?

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

1.12 Question am: True or False?

If frames 1,2,3,5,6 and 7 have been received, and a frame with sequence number 4 is received in a Sliding Window protocol, frame 4 will be acknowledged

1.13 Question an: True or False?

802.11 uses Carrier Sense Multiple Access with Collision Detection (CSMA/CD)

1.14 Question ao: True or False?

A high bandwidth delay product increases the complexity of keeping the network fully utilised

1.15 Question ap: True or False?

The presentation layer is responsible for the format of data exchanged between peers

1.16 Question aq: True or False?

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

1.17 Question ar: True or False?

The baud rate of Manchester encoding is double the bit rate

1.18 Question as: True or False?

For each bit the sender wants to transmit using Direct Sequence spread spectrum it actually sends the inclusive OR of that bit and n random bits

1.19 Question at: True or False?

Ethernet is available in a range of speeds

1.20 Question au: True or False?

An Ethernet adaptor will normal receive all frames addressed to its own Ethernet address, to the broadcast address or to the multi-cast address range

1.21 Question av: True or False?

When a frame error is detected, two approaches to recover from it are to resend the entire frame, or to resend only the incorrect bits

1.22 Question aw: True or False?

If an Ethernet is busy, a node will a frame to send will wait until the line goes idle, and then transmit it immediately

1.23 Question ax: True or False?

Carrier Sense is the mechanism by which Ethernet networks detect collisions

1.24 Question ay: True or False?

Most widely used wireless links consist solely of very similar devices

1.25 Question az: True or False?

The stop-and-wait protocol cannot make efficient use of links with high bandwidth delay products

1.26 Question ba: True or False?

BISYNC is a byte-oriented framing protocol

1.27 Question bb: True or False?

Greater bandwidth implies a faster network

1.28 Question bc: True or False?

For very small amounts of data the propagation time is more important than the transmission speed

1.29 Question bd: True or False?

Ethernet addresses belong to network adaptors, not to hosts.

1.30 Question be: True or False?

The listen() function defines the number of pending connections that can be queued on a socket

1.31 Question bf: True or False?

When two Ethernet devices attempt to transmit at the same time, the result is collision

1.32 Question bg: True or False?

Each entry in a virtual-circuit table must contain the source and destination of the address of the end points, a virtual circuit identifier and the outgoing interface for the circuit

1.33 Question bh: True or False?

Very strong transmission error detection can normally be provided using very few additional bits compared with the size of the data

1.34 Question bi: True or False?

It is the network adaptors that enable nodes to exchange frames

1.35 Question bj: True or False?

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

1.36 Question bk: True or False?

In 10BaseT, the T refers to Twisted-pair cable

1.37 Question bl: True or False?

Increasing the bandwidth results in slower transfers, unless there are enough transfers to fill the extra bandwidth

1.38 Question bm: True or False?

To start a server using the socket API the socket(), bind(), listen() and accept() functions must be called

1.39 Question bn: True or False?

Spread-spectrum transmission is a requirement for using license-free frequencies in many countries

1.40 Question bo: True or False?

A single original Ethernet cable could be used to connect many devices

1.41 Question bp: True or False?

In 802.11, a client may only request association with a different access point if the first access point has disconnected it

1.42 Question bq: True or False?

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

1.43 Question br: True or False?

A license from an agency like the FCC is required to use any frequency in any frequency band

1.44 Question bs: True or False?

CRCs use a polynomial because this allows checking the errors of more bits than with a checksum

1.45 Question bt: True or False?

The Internet Protocol uses a CRC to detect transmission errors

1.46 Question bu: True or False?

A logical channel is a network path that meets the specified logical requirements

1.47 Question bv: True or False?

The 802.11 distribution system provides services analogous to the use of cells in cellular telephone networks

1.48 Question bw: True or False?

In 802.11, if both DS bits are set to 1, the third address field identifies the access point that first accepted the frame from the client

1.49 Question bx: True or False?

The stop-and-wait protocol stops to wait only if an ACK frame is lost

1.50 Question by: True or False?

If a layered network model offers multiple different abstractions for one layer, it must also offer alternative abstractions for all layers higher in the network stack

1.51 Question bz: True or False?

ISDN is many times faster than dial-up connections

1.52 Question ca: True or False?

Network Application Programming Interfaces are typically provided by the network adaptor's hardware

1.53 Question cb: True or False?

Mobility between base stations is not a property of all commonly used wireless communications technologies

1.54 Question cc: True or False?

In an internet protocol graph application protocols appear at the top, and the networks at the bottom

1.55 Question cd: True or False?

A network should hide errors that occur during transmission

1.56 Question ce: True or False?

The Last Acknowledged Frame minus the Last Frame Sent is normally greater than +1 for the Sliding Window Protocol

1.57 Question cf: True or False?

The accept() function takes as its argument the address of the server.

1.58 Question cg: True or False?

Ethernet frames begin with the destination address, followed by preamble and data

1.59 Question ch: True or False?

Ethernet jamming is a process by which attackers prevent wireless communications on 802.11 Wi-Fi networks

1.60 Question ci: True or False?

Network adaptors concern themselves primarily with the encoding and decoding of individual bits. Frame boundaries are generally detected by the main processor of the computer, because it is

much faster than the processor included in a network adaptor.

1.61 Question cj: True or False?

The Last Acknowledgement Received is the time at which the last acknowledgement frame was received

1.62 Question ck: True or False?

The Receiving Window Size can be as small as 1, even if the Sending Window Size is very large

1.63 Question cl: True or False?

The virtual circuit identifier of incoming and outgoing packets for a given virtual circuit on a switch may differ

1.64 Question cm: True or False?

Bit-oriented data framing protocols are not suitable for byte-oriented data streams

1.65 Question cn: True or False?

It is the role of the Network Provider to design a cost-effective network with shareable resources

1.66 Question co: True or False?

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

1.67 Question cp: True or False?

Every node and router on an OSI network must implement all layers of the network

1.68 Question cq: True or False?

Each time an Ethernet adaptor tries to transmit but fails, it waits a random multiple of 51.2 micro seconds, where the maximum multiple increases with the number of failed transmission attempts

1.69 Question cr: True or False?

Multiplexing is a method for sharing a link

1.70 Question cs: True or False?

computer networks are a type of social media

1.71 Question ct: True or False?

The round-trip delay on Ethernets is based on the maximum frame length, and is relatively constant regardless of the number of connected hosts

1.72 Question cu: True or False?

The Shannon-Hartley Theorem describes the upper bound of the capacity of a link in terms of the noise-to-signal ratio

1.73 Question cv: True or False?

When using negative acknowledgement, the non-arrival of frames is acknowledged instead of the arrival of frames, reducing the number of acknowledgements that need to be sent

1.74 Question cw: True or False?

A switch is connected to a set of links, which do not need to use the same data link protocol

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1.75 Question cx: True or False?

Manchester encoding makes it easier to synchronise the signal, without increasing the bandwidth required to carry the signal