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?

NRZI changes the signal every time a 0 or a 1 is encoded, making it easier to synchronise

1.2 Question ac: 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

1.3 Question ad: 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

1.4 Question ae: True or False?

Baseline wander is corrected by sending a long series of 1s or 0s

1.5 Question af: True or False?

The 802.11 distribution system forwards frames sent by clients connected to some access point to devices connected to other access points

1.6 Question ag: True or False?

The Sending Window Size and the Receiving Window Size can be different sizes

1.7 Question ah: True or False?

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

1.8 Question ai: True or False?

Terminators are added to an Ethernet to increase the maximum size of the Ethernet

1.9 Question aj: True or False?

NRZ is the method for encoding binary signals on computer networks

1.10 Question ak: True or False?

With infinite bandwidth, latency dominates

1.11 Question al: True or False?

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

1.12 Question am: True or False?

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

1.13 Question an: True or False?

802.11 typically has shorter communications range compared with 4G cellular technologies

1.14 Question ao: True or False?

Switching and forwarding relies on the assumption that each device has a globally unique address

1.15 Question ap: True or False?

Transmission time is the sum of the latency plus propagation time of a packet

1.16 Question aq: True or False?

Ethernet adaptors can detect when a collision is in progress

1.17 Question ar: True or False?

A separate Ethernet cable was required to connect each additional device on Original Ethernet

1.18 Question as: True or False?

An inter-network is the space between two or more intra-networks

1.19 Question at: True or False?

A switched network uses a star topology

1.20 Question au: True or False?

The network API is called by the operating system to connect to different applications

1.21 Question av: True or False?

Core network technologies are evolving more slowly than access networks

1.22 Question aw: True or False?

Each switch must construct both switching tables and routing tables to fulfil its functions

1.23 Question ax: True or False?

In an Ad-hoc wireless network the nodes must elect a master node to coordinate the network

1.24 Question ay: True or False?

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

1.25 Question az: True or False?

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

1.26 Question ba: True or False?

Ethernet is the most successful local area networking technology over recent decades

1.27 Question bb: True or False?

A client does not normally care about the local port number when making a connection.

1.28 Question bc: True or False?

The Internet Engineering Task Force (IETF) is responsible for defining the Internet Architecture

1.29 Question bd: True or False?

For interactive network connections bandwidth is more important than latency

1.30 Question be: True or False?

In a layered network model, the application layer or equivalent must be at the top of the stack of layers

1.31 Question bf: True or False?

The international standard for CRC generator polynomials is to allocate a unique generator polynomial each time one is required

1.32 Question bg: True or False?

In 802.11, the use of probe frames is referred to active scanning

1.33 Question bh: True or False?

LAN, MAN, WAN and SAN are all acronyms for types of networks

1.34 Question bi: True or False?

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

1.35 Question bj: True or False?

Ethernet does not work as well under heavy load conditions as some other alternatives, such as token ring

1.36 Question bk: True or False?

CRCs are used to detect errors

1.37 Question bl: True or False?

Certain frequencies are reserved for specific uses

1.38 Question bm: True or False?

The socket API defines operation for creating, cloning, and closing sockets

1.39 Question bn: True or False?

In a connectionless network, the sender has no idea whether the network can deliver a packet to a given recipient, or even if the recipient exists or is on the network

1.40 Question bo: True or False?

Non-technical factors are important drivers of the evolution of networks

1.41 Question bp: True or False?

Devices that use license-exempt frequencies must only ensure that they use only the license-exempt frequencies to be eligible for licence-free operation

1.42 Question bq: True or False?

Protocols are the building blocks of a network

1.43 Question br: True or False?

PPP uses 0x3e as start-of-text character

1.44 Question bs: True or False?

CRCs are a common technique for correcting transmission errors

1.45 Question bt: True or False?

In 802.11, a client may attempt to connect to a different access point while retaining its current connection to another access point

1.46 Question bu: True or False?

The Internet Protocol error detection uses a 16-bit value

1.47 Question bv: True or False?

URL stands for uniform resource locator

1.48 Question bw: 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.

1.49 Question bx: True or False?

Reception of an ACK indicates that a frame has been successfully received

1.50 Question by: True or False?

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

1.51 Question bz: 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

1.52 Question ca: True or False?

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

1.53 Question cb: True or False?

Network bandwidth is often measured in bits per second

1.54 Question cc: True or False?

Adding more hosts to a switched network does not necessarily degrade performance for all users

1.55 Question cd: True or False?

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

1.56 Question ce: True or False?

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

1.57 Question cf: True or False?

video-conferencing connects broadband subscribers with the rest of the internet

1.58 Question cg: True or False?

Permanent virtual circuits require the installation of dedicated hardware, which must not be removed until the virtual circuit is deleted

1.59 Question ch: True or False?

A switch is a single-input multi-output device that works out which output patch each arriving frame should go to

1.60 Question ci: True or False?

Ethernet is said to be a 1-persistent protocol because an adaptor with a frame to send transmit it repeatedly with probability 1, until the frame is acknowledged

1.61 Question cj: True or False?

In 802.11, if both DS bits are set to 1, the fourth address field identifies the original source

1.62 Question ck: True or False?

DDCMP uses a byte-counting approach

1.63 Question cl: True or False?

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

1.64 Question cm: True or False?

Fibre-optics typically uses frequencies that are in the X-Ray band

1.65 Question cn: True or False?

When a message is delayed, but eventually delivered, this is not a network reliability problem, but only a performance problem

1.66 Question co: 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

1.67 Question cp: True or False?

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

1.68 Question cq: True or False?

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

1.69 Question cr: True or False?

The virtual circuit identifier of an incoming packet uniquely identifies the virtual circuit to a switch

1.70 Question cs: True or False?

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

1.71 Question ct: True or False?

The Last Acknowledged Frame minus the Last Frame Received must be no larger than the Receive Window Size

1.72 Question cu: True or False?

De-multiplexing describes the process of removing multiplexing from a network, so that links on the network don't need to be shared.

1.73 Question cv: True or False?

Bluetooth supports parking devices, i.e., un-pairing the device to allow another device to connect in its place

1.74 Question cw: True or False?

Each time an Ethernet adaptor tries to transmit but fails, the amount of time it waits increases four times longer

1.75 Question cx: True or False?

Ethernet addresses are 6 bytes long