

Computer Networks 2021 Quiz 1

FAN: whit1248

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?

The data link layer transfers data frames

1.2 Question ac: True or False?

Switches can be interconnected to form larger networks

1.3 Question ad: True or False?

If an Ethernet is idle, a node with a frame to send will wait a short random period of time before sending the frame, to help avoid packet collisions

1.4 Question ae: True or False?

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

1.5 Question af: True or False?

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

1.6 Question ag: True or False?

The combination of the virtual circuit identifier and incoming port number uniquely identifies the virtual circuit to a switch

1.7 Question ah: True or False?

Switches can implement either datagram or virtual circuit approaches

1.8 Question ai: True or False?

BISYNC is a byte-oriented framing protocol

1.9 Question aj: 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

1.10 Question ak: True or False?

802.11 cannot be used to form ad-hoc wireless networks

1.11 Question al: True or False?

In 802.11, clients send association requests to connect to a given access point

1.12 Question am: True or False?

The send() function is used to send data or a message over a socket

1.13 Question an: True or False?

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

1.14 Question ao: True or False?

The Sliding Window protocol tends to slow down if packets are lost

1.15 Question ap: True or False?

Placing binary data on a signal is called multi-plexing

1.16 Question aq: True or False?

In 802.11, the duration field is used to indicate whether a frame has already been forwarded via a distribution system or not

1.17 Question ar: True or False?

HDLC uses a sequence of exactly six consecutive 1s to indicate the end of a frame

1.18 Question as: True or False?

Two-dimensional parity is able to catch all 1, 2, 3 and 4 bit errors.

1.19 Question at: True or False?

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

1.20 Question au: True or False?

Switches rely on the contents of packets to get the information required to make switching and forwarding decisions

1.21 Question av: True or False?

DSL and fibre-to-the-home connections have overlapping speed ranges

1.22 Question aw: True or False?

The 802.11 distribution system operates at layer 3 of the ISO architecture

1.23 Question ax: True or False?

Frequency Division Multiplexing changes the rate of time slots used to share a network link

1.24 Question ay: True or False?

Error detection bits work by adding new information to the message

1.25 Question az: True or False?

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

1.26 Question ba: True or False?

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

1.27 Question bb: True or False?

The Sliding Window protocol uses sequence numbers to allow multiple unacknowledged frames at any point in time

1.28 Question bc: True or False?

Devices that use license-exempt frequencies still face certain restrictions on their use of those license-exempt frequencies

1.29 Question bd: True or False?

Switching and forwarding relies on either one of hosts or ports having unique identifiers

1.30 Question be: True or False?

An acknowledgement is sent whenever a peer is ready to receive a frame

1.31 Question bf: True or False?

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

1.32 Question bg: True or False?

CRCs use a polynomial to produce a more robust error detection than a checksum

1.33 Question bh: True or False?

A switch is a multi-input multi-output device which transfers packets from an input to one or more outputs

1.34 Question bi: True or False?

802.11 uses special frames to enable senders to reserve a short period of time in which they can send a frame

1.35 Question bj: True or False?

With NRZ encoding a signal of average voltage encodes a 0, otherwise a 1

1.36 Question bk: 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

1.37 Question bl: True or False?

It is impossible to produce network links that do not rely on electromagnetic radiation

1.38 Question bm: True or False?

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

1.39 Question bn: True or False?

A piconet is a Bluetooth network consisting of one master device and up to 7 slave devices

1.40 Question bo: True or False?

4B/5B encoding cannot encode certain 5 bit input sequences, because they contain too many consecutive 1s or 0s

1.41 Question bp: True or False?

Tightening bandwidth implies a more efficient, faster network

1.42 Question bq: True or False?

Frequency allocations for wireless communications are made by government agencies in most countries

1.43 Question br: True or False?

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

1.44 Question bs: True or False?

In packet-switched networks, data frames rather than data streams are transferred

1.45 Question bt: True or False?

802.11g is backwards compatible with 802.11a

1.46 Question bu: True or False?

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

1.47 Question bv: True or False?

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

1.48 Question bw: True or False?

In 802.11, if both DS bits are set to 1, this means that the frame has been transferred over the maximum number of hops allowed by the distribution system: If another hop were required, the frame would be dropped

1.49 Question bx: True or False?

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

1.50 Question by: 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

1.51 Question bz: True or False?

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

1.52 Question ca: True or False?

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

1.53 Question cb: True or False?

The hidden node problem occurs when a node transmits only occasionally, thus remaining hidden from other transmitters until it transmits

1.54 Question cc: True or False?

The baud rate of Manchester encoding is double the bit rate

1.55 Question cd: True or False?

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

1.56 Question ce: True or False?

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

1.57 Question cf: True or False?

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

1.58 Question cg: True or False?

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

1.59 Question ch: True or False?

Two-dimensional parity calculates both odd and even parity for each byte to increase its strength

1.60 Question ci: True or False?

The Sliding Window protocol sends cumulative ACKs when frames have been received out of order

1.61 Question cj: True or False?

If two nodes send an RTS frame at the same time a collision occurs which cannot be detected on an 802.11 network

1.62 Question ck: True or False?

When any node receives a CTS frame, it must remain silent for the time required for a frame of the specified length to be transmitted

1.63 Question cl: True or False?

The aggregate throughput through a switch can never exceed the maximum bandwidth of each of its ports

1.64 Question cm: True or False?

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

1.65 Question cn: True or False?

Original Ethernet used cable similar to that of cable TV

1.66 Question co: True or False?

In 10BaseT, the T refers to the use of T-pieces to tap into the network

1.67 Question cp: True or False?

With infinite latency, bandwidth dominates

1.68 Question cq: True or False?

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

1.69 Question cr: True or False?

CRCs are used to detect errors

1.70 Question cs: True or False?

Servers normally listen for connections on any TCP port number

1.71 Question ct: True or False?

Wireless technologies offer substantially similar bandwidth and range of communications, because they all use the same transmission medium which has approximately constant properties

1.72 Question cu: True or False?

A logical channel is an application-to-application communication path

1.73 Question cv: True or False?

Wi-Fi supports power management and security mechanisms to optimise its function

1.74 Question cw: True or False?

The IP address must be discovered before an HTTP request can be made

1.75 Question cx: True or False?

5G networks offer higher speed and lower latency compared with earlier generations