

# Computer Networks 2021 Quiz 1

**FAN: mcgh0008**

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

### **1.2 Question ac: True or False?**

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

### **1.3 Question ad: 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

### **1.4 Question ae: True or False?**

Direct Sequence is one method of spread-spectrum transmission

### **1.5 Question af: True or False?**

BISYNC requires the use of data-link escape characters

### **1.6 Question ag: True or False?**

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

### **1.7 Question ah: True or False?**

The network device driver in an operating system implements the physical layer

### **1.8 Question ai: True or False?**

When a node wishes to transmit a frame, it must wait for a network adaptor to receive a Clear To Send indication from the connected node

### **1.9 Question aj: True or False?**

Circuit Switched and Packet Switched are two kinds of switched network

### **1.10 Question ak: True or False?**

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

### **1.11 Question al: True or False?**

Original Ethernet used commonly available cable TV cable, which made it cheaper to deploy

### **1.12 Question am: True or False?**

Cloud Networking is a catch-all for parts of the network that you do not control

### **1.13 Question an: True or False?**

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

### **1.14 Question ao: True or False?**

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

### **1.15 Question ap: True or False?**

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

### **1.16 Question aq: True or False?**

The increased conversion of slow software into fast hardware in network devices is a key driver powering network innovation

### **1.17 Question ar: True or False?**

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

### **1.18 Question as: True or False?**

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

### **1.19 Question at: True or False?**

If the additional bits transmitted to provide error detection match a specific expected value, then no error has been detected

### **1.20 Question au: True or False?**

Ethernet's superior performance under heavy load conditions compared with alternatives like token ring is why Ethernet has come to dominate LAN deployments

### **1.21 Question av: True or False?**

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

### **1.22 Question aw: True or False?**

802.11g is backwards compatible with 802.11a

### **1.23 Question ax: True or False?**

Protocol means the specifications of a peer-to-peer interface, but never the module that implements the interface, which is instead called the Network Driver

### **1.24 Question ay: True or False?**

5G networks trade off latency to obtain higher speeds compared with earlier cellular networks

### **1.25 Question az: True or False?**

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

### **1.26 Question ba: True or False?**

Two-dimensional parity is parity performed in two different directions, and also includes the parity of the parity

### **1.27 Question bb: True or False?**

The Sending Window Size and the Receiving Window Size must be equal

### **1.28 Question bc: True or False?**

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

### **1.29 Question bd: True or False?**

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

### **1.30 Question be: True or False?**

The ALOHA packet radio network was developed from Ethernet as the pre-cursor to 802.11 Wi-Fi

### **1.31 Question bf: True or False?**

The Sliding Window Protocol creates problems for reliability, preservation of order of data and frame control because of its complexity

### **1.32 Question bg: True or False?**

When an ACK is received, the Last Acknowledgement Received moves to the right, i.e., increases

### **1.33 Question bh: True or False?**

Switching tables and routing tables are different names for essentially the same structure

### **1.34 Question bi: True or False?**

In 802.11, one of the measures that reduces the size of RTS and CTS frames is that they do not contain the control header field

### **1.35 Question bj: True or False?**

The accept() function normally immediately returns with an error if there are no waiting connections

### **1.36 Question bk: True or False?**

In an Ad-hoc wireless network all nodes are peers

### **1.37 Question bl: True or False?**

Demodulation is the process of encoding a signal by modifying its frequency, amplitude or phase

### **1.38 Question bm: True or False?**

If an Ethernet is idle, a node with a frame to send will immediately send it

### **1.39 Question bn: True or False?**

Signals placed on the Ethernet are directed to the intended receiver only, unless it is a broadcast frame

### **1.40 Question bo: True or False?**

Collision between Ethernet frames results in a 96-bit "runt frame".

#### **1.41 Question bp: True or False?**

It is always true that the longer the range of wireless communications, the lower the data rate

#### **1.42 Question bq: True or False?**

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

#### **1.43 Question br: True or False?**

The hidden node problem is a significant problem for wireless networks

#### **1.44 Question bs: True or False?**

4B/5B encoding is less efficient than Manchester encoding, because of the extra bits it has to send

#### **1.45 Question bt: True or False?**

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

#### **1.46 Question bu: 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

#### **1.47 Question bv: True or False?**

The Internet Protocol error detection algorithm uses ones-complement addition



#### **1.48 Question bw: True or False?**

A switched network uses a bus topology

#### **1.49 Question bx: True or False?**

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

#### **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?**

One of the advantages of the Sliding Window protocol is that lost packets don't slow it down, because multiple packets can be in transit

#### **1.52 Question ca: True or False?**

802.11 cannot be used to form ad-hoc wireless networks

#### **1.53 Question cb: True or False?**

In the worst case, it can take as many as 512 bits of transmission before collision on an Ethernet can be detected

#### **1.54 Question cc: True or False?**

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

#### **1.55 Question cd: True or False?**

BISYNC is a byte-oriented framing protocol

#### **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?**

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

#### **1.58 Question cg: True or False?**

The baud rate of Manchester encoding is half the bit rate

#### **1.59 Question ch: True or False?**

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

#### **1.60 Question ci: True or False?**

PPP uses 0x3e as start-of-text character

### **1.61 Question cj: 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

### **1.62 Question ck: True or False?**

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

### **1.63 Question cl: True or False?**

For large file transfers latency is more important than bandwidth

### **1.64 Question cm: True or False?**

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

### **1.65 Question cn: True or False?**

HDLC relies on the checksum to detect all framing errors

### **1.66 Question co: 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

### **1.67 Question cp: True or False?**

Dis-aggregation of networking software and hardware is hindering the evolution of access networks

### **1.68 Question cq: True or False?**

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

### **1.69 Question cr: 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

### **1.70 Question cs: True or False?**

HDLC is a bit-oriented data framing protocol

### **1.71 Question ct: True or False?**

Building and operating networks involves the input of many stakeholders

### **1.72 Question cu: True or False?**

Detecting that an error has occurred in a frame allows the error to be corrected, because binary values have only two values, allowing the incorrect to be flipped

### **1.73 Question cv: True or False?**

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

### **1.74 Question cw: True or False?**

Ethernet adaptors use a jamming sequence when they detect collision

### 1.75 Question cx: True or False?

host-to-host connectivity is a major goal of computer networks