

# Computer Networks 2021 Quiz 1

**FAN: hang0013**

*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?

Core network technologies are evolving more slowly than access networks

### 1.2 Question ac: True or False?

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

### 1.3 Question ad: True or False?

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

### 1.4 Question ae: True or False?

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

### 1.5 Question af: True or False?

Certain frequencies are reserved for specific uses, but only within certain geographical areas of each country to ensure that all frequencies are available for wireless communications in most

locations

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

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

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

Wireless links transmit using electromagnetic signals, typically at radio, microwave or infra-red wavelengths

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

BISYNC frames typically start with a SYN character and end with CRC characters

### **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?**

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

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

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

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

When a node wishes to transmit a frame, it requests the network adaptor to do this

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

Both sender and receiver must implement the same error detection algorithm

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

Direct Sequence transmission involves the transmission of n-bit chipping codes that spread the signal across a frequency band that is n times wider

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

The Internet Architecture, like the OSI model, uses strict layering

### **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?**

Satellite communications typically use similar frequencies to terrestrial microwave communications

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

As a message goes down through a network stack, it is encapsulated and becomes larger

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

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

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

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

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

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

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

DDCMP's byte-counting approach results in reduced efficiency due to the need to include the byte count field

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

The Internet Protocol uses a CRC to detect transmission errors

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

If a node receives an RTS frame, but not a CTS frame, it is free to transmit if it wishes

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

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

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

computer networks enable access to services such as social media

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

The performance of the Sliding Window protocol can be improved through negative, additional or selective acknowledgement

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

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

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

The Service Interface of a protocol is used to operate on the messages exchanged with peers using the protocol

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

NRZ requires clock-recovery logic

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

A piconet is a Bluetooth personal area network where all devices are within 1 metre of each other, which allows for lower power consumption

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

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

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

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

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

CRCs are strong enough to correct errors

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

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

### **1.36 Question bk: 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

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

802.11 frames normally contain two address fields: source and destination

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

The Sliding Window Protocol helps provide reliability in the face of packet loss, in-order reception of data and throttling of the sender's transmission rate

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

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

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

Routers need only implement the lower layers of a network protocol stack

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

Switches can implement either datagram or virtual circuit approaches

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

The data link layer handles the transmission of raw bits over a communications link

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

Ethernet frames must contain at least 46 bytes of data

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

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

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

DDCMP (Digital Data Communications Protocol) is a byte-oriented framing protocol

#### **1.46 Question bu: True or False?**

CRCs are a common technique for detecting transmission errors



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

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

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

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

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

An advantage with Manchester encoding is that it doubles the rate of signal transitions compared with NRZ encoding

#### **1.50 Question by: True or False?**

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

#### **1.51 Question bz: True or False?**

Bluetooth is used to connect mobile phones, network computers and other personal devices because it provides higher bandwidth at short ranges than Wi-Fi can provide

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

Hertz refers to the wave-length of an electromagnetic wave

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

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

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

When using the Sliding Window Protocol, the sender has to be willing to buffer up to SWS (Sliding Window Size) frames

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

Client/Server is a common communications pattern

#### **1.56 Question ce: True or False?**

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

#### **1.57 Question cf: True or False?**

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

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

PPP uses fixed-length fields to aid synchronisation

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

An inter-network is a number of networks connected together

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

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

### **1.61 Question cj: True or False?**

The Internet Protocol error detection uses a 32-bit value, similar to that used in Ethernet

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

In the Internet Architecture the application layer directly interfaces only to the transport layer, as the next layer down in the network stack.

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

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

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

For short transfers latency is more important than bandwidth

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

802.11b supports higher transfer speeds than 802.11a

### **1.66 Question co: 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

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

Original Ethernet used cable similar to that of cable TV

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

The send() function is used to send a connection request to a server

### **1.69 Question cr: True or False?**

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

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

Typical round-trip delays on Ethernets are less than 10 micro seconds

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

Eavesdropping on network traffic is not a network reliability problem

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

Most widely used wireless links consist solely of very similar devices

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

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

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

MAN stands for Multiplexing Area Network

### 1.75 Question cx: True or False?

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