



## Final Exam: Attem...

moodle.iugaza.edu.ps



Grade 20 out of 20 (100%)

1

ut of 1  
question

The 'filter toolbar' in Wireshark allows direct manipulation of the display filter.

Select one:

- ☒ True ✓
- ☐ False

2

ut of 1  
question

A modem converts digital data into an analog signal for transmission over telephone lines.

Select one:

- ☒ True ✓
- ☐ False

3

ut of 1  
question

How many guard bands are needed to separate 10 channels?

- ☐ 10
- ☒ 9 ✓
- ☐ 11
- ☐ 8

4

ut of 1  
question

The checksum of 1111 and 1111 is \_\_\_\_\_. Note the two data in binary format

- ☒ 0000 ✓
- ☐ 1111
- ☐ 1011
- ☐ 0011

5

ut of 1  
questionWhat is the propagation time for a 2.5-kbyte message if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at  $2.4 \times 10^8$  m/s.

- ☐ 20 ms
- ☒ 50 ms ✓
- ☐ 30 ms
- ☐ 60 ms

6

ut of 1  
question

The TCP/IP model has seven layers like the OSI model.

Select one:

- ☐ True
- ☒ False ✓

7

ut of 1  
question

The MAC address is stored in the PROM of the network card.

Select one:

- ☒ True ✓
- ☐ False



1 out of 1  
tag question

Select one:

- ☐ True
- ☒ False ✓

Question 7  
1 out of 1  
tag question

The MAC address is stored in the PROM of the network card.

Select one:

- ☒ True ✓
- ☐ False

Question 8  
1 out of 1  
tag question

\_\_\_\_\_ is a hardware device that connects multiple devices on a computer network

- ☐ Router
- ☒ Switch ✓
- ☐ Hub
- ☐ NIC

Question 9  
1 out of 1  
tag question

A cable company uses one of the cable TV channels (with a bandwidth of 6 MHz) to provide digital communication for each resident. What is the available data rate for each resident if the company uses a 64-QAM technique?

- ☐ 24 Mbps
- ☐ 30 Mbps
- ☒ 36 Mbps ✓
- ☐ 42 Mbps

Question 10  
1 out of 1  
tag question

A communication channel has a capacity of 100 Mbps and a bandwidth of 3 MHz. Using the Shannon-Hartley theorem, what is the required signal-to-noise ratio (SNR) to achieve this capacity?

- ☐ 33 db
- ☐ 56 db
- ☒ 100.33 ✓
- ☐ 78.5 db

Question 11  
1 out of 1  
tag question

Fiber-optic cables are immune to electromagnetic interference (EMI).

Select one:

- ☒ True ✓
- ☐ False

Question 12  
1 out of 1  
tag question

Which of the following is a key difference between a switch and a hub?

- ☐ A switch broadcasts data to all devices, while a hub directs data to specific devices.
- ☐ A switch operates at the Physical layer, while a hub operates at the Data Link layer.
- ☒ A switch directs data to specific devices, while a hub broadcasts data to all devices. ✓
- ☐ A switch and a hub perform the same functions in a network.

Question 13

What does DNS (Domain Name System) do?

Question 13

Correct

1 out of 1

Flag question

What does DNS (Domain Name System) do?

- ☐ It supports the transmission of emails.
- ☐ It allows access to the World Wide Web.
- ☒ It maps domain names to IP addresses.
- ☐ It ensures secure file transfers.



Question 14

Correct

1 out of 1

Flag question

In the TCP/IP protocol suite, which of the following is an application layer protocol?

- ☐ The User Datagram Protocol (UDP)
- ☐ The Internet Protocol (IP)
- ☒ The File Transfer Protocol (FTP)
- ☐ The Transmission Control Protocol (TCP)



Question 15

Correct

1 out of 1

Flag question

What is the transmission time for a 2.5-kbyte message if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at  $2.4 \times 10^8$  m/s.

- ☒ 0.020 ms
- ☐ 0.020 s
- ☐ 0.025 ms
- ☐ 0.025 s



Question 16

Correct

1 out of 1

Flag question

In OSI, application layer involves translation, also Compression and encryption are defined at this layer.

Select one:

- ☐ True
- ☒ False



Question 17

Correct

1 out of 1

Flag question

8- In the OSI model, which layer manages the reassembly of data segments into complete messages?

- ☐ Network Layer
- ☐ Session Layer
- ☒ Transport Layer
- ☐ Presentation Layer



Question 18

Correct

1 out of 1

Flag question

Which layer of the OSI model is responsible for establishing, managing, and terminating connections between applications?

- ☐ Physical layer
- ☐ Data link layer
- ☐ Network layer
- ☒ Session layer



Question 19

Correct

1 out of 1

Flag question

If the frame rate is 100,000 frames per second and each frame carries 21 bits, what is the data rate?

- ☐ 1.1 Mbps
- ☒ 2.1 Mbps
- ☐ 3.1 Mbps
- ☐ 4.1 Mbps



- ☒ The File Transfer Protocol (FTP) ✓
- ☐ The Transmission Control Protocol (TCP)

Question 15

Subject

1 out of 1  
tag question

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Question 20

Subject

1 out of 1  
tag question

A channel with a bandwidth (BW) of 3.0 kHz and a signal-to-noise ratio of 40 dB. What is the maximum bit-rate (in bps) for this channel?

- ☐ 25 kbps
- ☐ 30.68 kbps
- ☐ 35.86 kbps
- ☒ 39.86 kbps ✓

[Finish review](#)

The total bandwidth required for amplitude modulation (AM) is twice the bandwidth of the modulating signal.

Select one:

- ☒ True ✓
- ☐ False

Which of the following would filter only packets containing a specific IP address, e.g., 18.224.161.65?

- ☐ ip.src == 18.224.161.65
- ☐ ip.dst == 18.224.161.65
- ☒ ip.addr == 18.224.161.65 ✓
- ☐ ip.filter == 18.224.161.65

A signal is measured at two different points. The power is P1 at the first point and P2 at the second point. The dB is 0. This means \_\_\_\_\_.

- ☐ P2 is zero
- ☒ P2 equals P1 ✓
- ☐ P2 is much larger than P1
- ☐ P2 is much lower than P1

Which of the following filter expressions will display only DNS traffic in Wireshark?

- ☐ a. ip.src == dns
- ☐ b. dns
- ☒ c. tcp.port == 53 ✗
- ☐ d. a or b

Consider a noiseless channel with a bandwidth of 4 KHz. If we want to transmit 24 Kbps on this channel, the minimum number of signal levels we need is .....

- ☐ 4
- ☐ 6
- ☒ 8 ✓
- ☐ 12

PAN (Personal Area Network) is a network arranged within an individual person, typically within a range of 100 meters.

Select one:

- ☐ True
- ☒ False ✓

If the frame rate is 100,000 frames per second and each frame carries 21 bits, what is the data rate?

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## اتصالات بيانات (عملي)

|              |                                     |
|--------------|-------------------------------------|
| Started on   | Saturday, 7 February 2026, 12:28 PM |
| State        | Finished                            |
| Completed on | Saturday, 7 February 2026, 12:48 PM |
| Time taken   | 20 mins 9 secs                      |
| Grade        | 19 out of 20 (95%)                  |

## Question 1

Correct

Mark 1 out of 1

Flag question

Routers operate at the Data Link layer of the OSI model.

Select one:

- ☐ True
- ☒ False ✓

## Question 2

Correct

Mark 1 out of 1

Flag question

The 'enable promiscuous mode on all interfaces' option in Wireshark allows you to see only the packets addressed to your network adapter.

Select one:

- ☐ True
- ☒ False ✓

## Question 3

Correct

Mark 1 out of 1

Flag question

If we want to be able to automatically correct up two-bit errors, what should be the minimum Hamming distance?

- ☐ 2
- ☐ 3
- ☐ 4
- ☒ 5 ✓

## Question 4

Correct

Mark 1 out of 1

Flag question

In data communication, what does the term 'protocol' refer to?

- ☐ The physical path of data transmission
- ☐ The device that sends data
- ☐ The device that sends data
- ☒ A set of rules for communication ✓
- ☐ The data being transmitted

## Question 5

Correct

Mark 1 out of 1

Flag question

A communication channel has a capacity of 100 Mbps and a bandwidth of 3 MHz. Using the Shannon-Hartley theorem, what is the required signal-to-noise ratio (SNR) to achieve this capacity?

- ☐ 33 db
- ☐ 56 db
- ☒ 100.33 ✓
- ☐ 78.5 db

## Question 6

Correct

Mark 1 out of 1

Flag question

A router can only connect networks that use the same protocol.

Select one:

- ☐ True
- ☒ False ✓

## Question 7

Correct

Mark 1 out of 1

Home network is an example of Wide Area Network.

Select one:

☒ False ✓

## Question 7

Correct

Mark 1 out of 1

Flag question

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Select one:

- ☐ True
- ☒ False ✓

## Question 8

Correct

Mark 1 out of 1

Flag question

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Mark 1 out of 1

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Correct

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Flag question

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## Question 14

Incorrect

Mark 0 out of 1

Flag question

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Flag question

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Question 14

Incorrect

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Question 15

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Mark 1 out of 1

Flag question

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- ☐ 4
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Question 16

Correct

Mark 1 out of 1

Flag question

PAN (Personal Area Network) is a network arranged within an individual person, typically within a range of 100 meters.

Select one:

- ☐ True
- ☒ False



Question 17

Correct

Mark 1 out of 1

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- ☒ 2.1 Mbps
- ☐ 3.1 Mbps
- ☐ 4.1 Mbps



Question 18

Correct

Mark 1 out of 1

Flag question

Which encoding method uses alternating positive and negative values for 1s?

- ☐ NRZ-I
- ☐ RZ
- ☐ Manchester
- ☒ AMI



Question 19

Correct

Mark 1 out of 1

Flag question

8- In the OSI model, which layer manages the reassembly of data segments into complete messages?

- ☐ Network Layer
- ☐ Session Layer
- ☒ Transport Layer
- ☐ Presentation Layer



Question 20

Correct

Mark 1 out of 1

Flag question

A telephone line normally has a bandwidth of 3000 Hz (300 to 3300 Hz) assigned for data communications. The signal-to-noise ratio is 4095. What is the theoretical highest bit rate of this regular telephone line?

- ☐ 24 kbps
- ☒ 36 kbps
- ☐ 48 kbps
- ☐ 60 kbps

