

Page 1:

1 ✓

2 ✓

3 ✓

4 ✓

5 ✓

6 ✓

7 ✓

8 ✓

9 ✓

Page 2:

10 ✓

11 ✓

12 ✓

13 ✓

14 ✓

15 ✓

16 ✓

Previous Page

Next Page

Page 1 of 2

### Question 1 (6 points) ✓ Saved

The equation for bit rate ( $Rate_b$ ) of 802.11b standard with 5.5 Mbps and 11 Mbps is given as:

$$Rate_b = \text{BaudRate} \times (A) \text{bits/symbol} \times (B) \text{bits/sequence}$$

where A and B values are depending on the modulation techniques

What is the BaudRate for IEEE 802.11b standard with 5.5 Mbps if the modulation technique is 2-DQPSK?

- ☐ 1 Mbaud
- ☐ 2.75 Mbaud
- ☒ 1.375 Mbaud
- ☐ 2 Mbaud

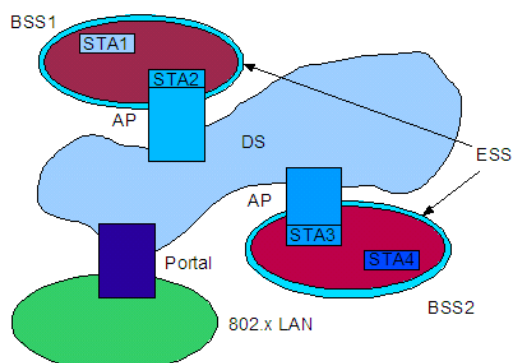
### Question 2 (6 points) ✓ Saved

Which one of the following IEEE802.11 standards has the lowest bit rate?

- ☐ IEEE802.11n
- ☐ IEEE802.11a
- ☐ IEEE802.11g
- ☒ IEEE802.11b

### Question 3 (10 points) ✓ Saved

Match the following terminologies to their description.



1 ✓ AP

2 ✓ STA

4 ✓ DS

- Devices that join one BSS to DS
- Device that can transmit and receive WLAN signal
- A collection of devices that can transmit and receive to one another within the RF transmission range
- To provide logical services to enable multiple

Page 1:

1 ✓

2 ✓

3 ✓

4 ✓

5 ✓

6 ✓

7 ✓

8 ✓

9 ✓

Page 2:

10 ✓

11 ✓

12 ✓

13 ✓

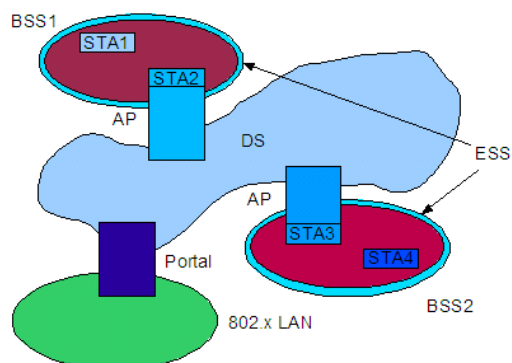
14 ✓

15 ✓

16 ✓

### Question 3 (10 points) ✓ Saved

Match the following terminologies to their description.



1 ▾ AP

2 ▾ STA

4 ▾ DS

5 ▾ Portal

3 ▾ BSS

6 ▾ ESS

1. Devices that join one BSS to DS
2. Device that can transmit and receive WLAN signal
3. A collection of devices that can transmit and receive to one another within the RF transmission range
4. To provide logical services to enable multiple BSSs to interconnect one another
5. To interconnect WLAN to existing wired LAN
6. A collection of devices that can transmit and receive to one another even when they are not within RF transmission range

### Question 4 (6 points) ✓ Saved

Which one of the following standards uses direct sequence spread spectrum technology (DSSS)?

- ☐ IEEE 802.11n
- ☐ IEEE 802.11a
- ☒ IEEE 802.11b
- ☐ IEEE 802.11g

### Question 5 (8 points) ✓ Saved

Which of the following layers in the OSI reference model are being defined in IEEE 802.11 standard?

Application Layer

Presentation Layer

Session Layer

Transport Layer

Page 1:

1 ✓ 2 ✓ 3 ✓

4 ✓ 5 ✓ 6 ✓

7 ✓ 8 ✓ 9 ✓

Page 2:

10 ✓ 11 ✓ 12 ✓

13 ✓ 14 ✓ 15 ✓

16 ✓

Question 4 (6 points) ✓ Saved

Which one of the following standards uses direct sequence spread spectrum technology (DSSS)?

☐ IEEE 802.11n

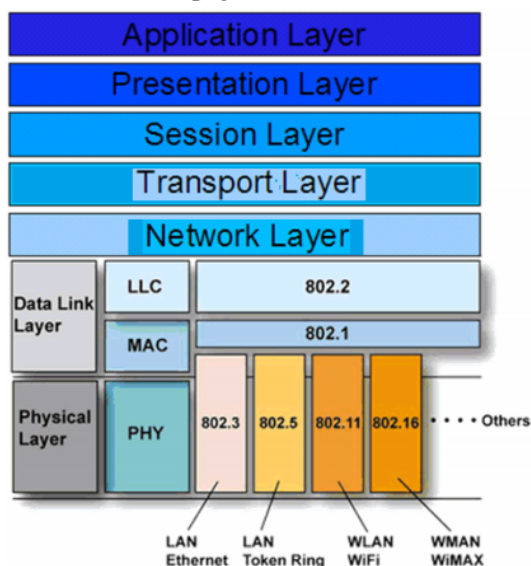
☐ IEEE 802.11a

☒ IEEE 802.11b

☐ IEEE 802.11g

Question 5 (8 points) ✓ Saved

Which of the following layers in the OSI reference model are being defined in IEEE 802.11 standard?



☐ Application layer

☒ Physical layer

☐ Transport layer

☐ Session layer

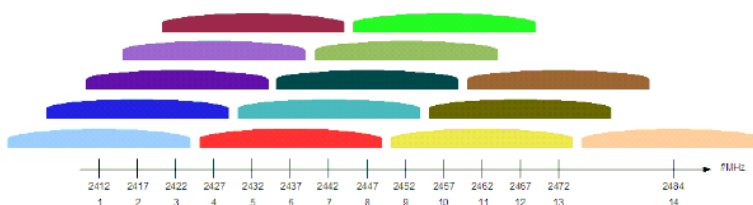
☐ Network layer

☐ Presentation layer

☒ Data Link layer

Question 6 (6 points) ✓ Saved

How many non-overlapping channels are available in Japan for IEEE802.11b?



Page 1:

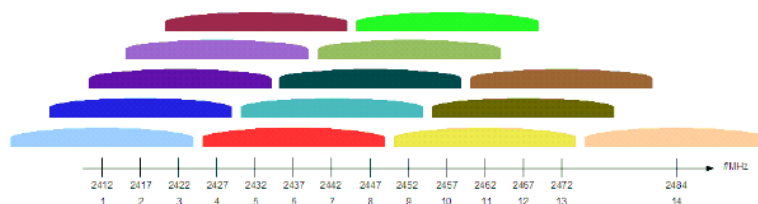
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4 ✓	5 ✓	6 ✓
7 ✓	8 ✓	9 ✓

Page 2:

10 ✓	11 ✓	12 ✓
13 ✓	14 ✓	15 ✓
16 ✓		

Question 6 (6 points) ✓ Saved

How many non-overlapping channels are available in Japan for IEEE802.11b?



- ☐ 1
- ☒ 4
- ☐ 2
- ☐ 3

Question 7 (6 points) ✓ Saved

Which multiple access protocol is used in IEEE802.11g?

- ☐ DSSS (Direct Sequence Spread Spectrum)
- ☐ AFHSS (Adaptive Frequency Hopping Spread Spectrum)
- ☐ FHSS (Frequency Hopping Spread Spectrum)
- ☒ OFDM (Orthogonal Frequency Division Multiplexing)

Question 8 (6 points) ✓ Saved

Which one of the following statements is TRUE regarding ad-hoc mode?

- ☐ Ad-hoc mode can only be formed using two STAs.
- ☐ Ad-hoc mode requires one STA to be master and the other STA to be slave.
- ☒ Ad-hoc mode allows STAs in the same IBSS to communicate to one another.
- ☐ Ad-hoc mode requires the presence of an access point.

Question 9 (6 points) ✓ Saved

Which one of the following statements is FALSE regarding the IEEE 802.11b standard?

- ☐ It can only have 3 non-overlapping frequency channels in Singapore
- ☒ It has the maximum bit rate of 54 Mbps.
- ☐ Its bandwidth is 22 MHz
- ☐ It uses differential digital modulation technique.

Est. Length: 2:00:00

Time Taken:0:51:46

KHIU KIM HONG EEE-DEEE-FT-3A-06: Attempt 1

Page 1:

1 ✓	2 ✓	3 ✓
4 ✓	5 ✓	6 ✓
7 ✓	8 ✓	9 ✓

Page 2:

10 ✓	11 ✓	12 ✓
13 ✓	14 ✓	15 ✓
16 ✓		

☐ 1

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**Question 7 (6 points)** ✓ Saved

Which multiple access protocol is used in IEEE802.11g?

☐ DSSS (Direct Sequence Spread Spectrum)

☐ AFHSS (Adaptive Frequency Hopping Spread Spectrum)

☐ FHSS (Frequency Hopping Spread Spectrum)

☒ OFDM (Orthogonal Frequency Division Multiplexing)

**Question 8 (6 points)** ✓ Saved

Which one of the following statements is TRUE regarding ad-hoc mode?

☐ Ad-hoc mode can only be formed using two STAs.

☐ Ad-hoc mode requires one STA to be master and the other STA to be slave.

☒ Ad-hoc mode allows STAs in the same IBSS to communicate to one another.

☐ Ad-hoc mode requires the presence of an access point.

**Question 9 (6 points)** ✓ Saved

Which one of the following statements is FALSE regarding the IEEE 802.11b standard?

☐ It can only have 3 non-overlapping frequency channels in Singapore

☒ It has the maximum bit rate of 54 Mbps.

☐ Its bandwidth is 22 MHz

☐ It uses differential digital modulation technique.

Previous Page

Next Page

Page 1 of 2

Submit Quiz

16 of 16 questions saved

Page 1:

1 ✓

2 ✓

3 ✓

4 ✓

5 ✓

6 ✓

7 ✓

8 ✓

9 ✓

Page 2:

10 ✓

11 ✓

12 ✓

13 ✓

14 ✓

15 ✓

16 ✓

Previous Page

Next Page

Page 2 of 2

### Question 10 (6 points) ✓ Saved

The equation for bit rate ( $\text{Rate}_b$ ) of 802.11a standard is given as:

$$\text{Rate}_b = 0.25 \times R \times 48 \times \log_2 M$$

where  $R$  = Coding Rate

$M$  = the order of modulation

0.25 (Mbaud) = symbol rate

48 = no. of data channels

What is the bit rate for IEEE 802.11a if the modulation is QPSK and convolutional coding rate is  $\frac{3}{4}$ ?

- ☐ 24 Mbps
- ☐ 9 Mbps
- ☐ 6 Mbps
- ☒ 18 Mbps

### Question 11 (6 points) ✓ Saved

Which one of the following statements is FALSE regarding the IEEE 802.11g standard?

- ☐ It uses the same OFDM protocol as IEEE 802.11a.
- ☐ It uses the same coherent digital modulation technique as IEEE 802.11a.
- ☐ It operates on the same frequency channels as IEEE 802.11b.
- ☒ It has the same coverage as IEEE 802.11a.

### Question 12 (4 points) ✓ Saved

IEEE802.11g has a wider coverage area compared to IEEE802.11a.

- ☒ True
- ☐ False

### Question 13 (6 points) ✓ Saved

Which type of modulation technique is used in IEEE 802.11a?

- ☐ CCK (Complementary Code Keying)
- ☒ QPSK (Quadrature Phase Shift Keying)
- ☐ ASK (Amplitude Shift Keying)
- ☐ FSK (Frequency Shift Keying)

### Question 14 (6 points) ✓ Saved

How many non-overlapping channels do IEEE 802.11a have if the available spectrum is from 5.15 GHz to 5.85 GHz?

Page 1:

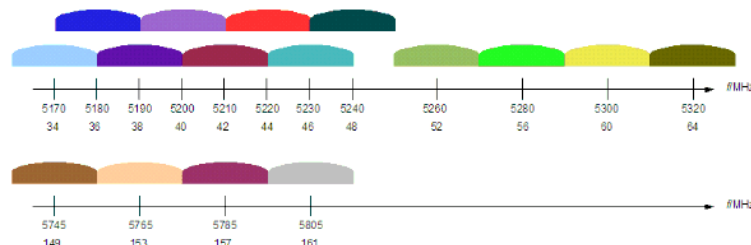
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4 ✓	5 ✓	6 ✓
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Page 2:

10 ✓	11 ✓	12 ✓
13 ✓	14 ✓	15 ✓
16 ✓		

### Question 14 (6 points) ✓ Saved

How many non-overlapping channels do IEEE 802.11a have if the available spectrum is from 5.15 GHz to 5.25 GHz?


☒ 4

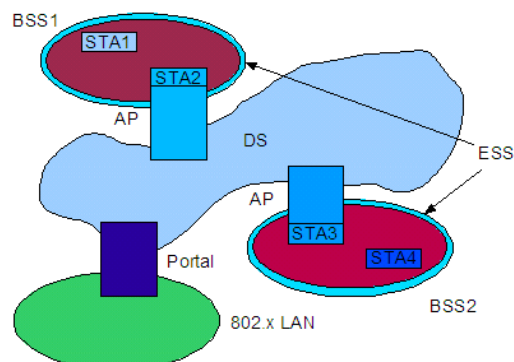
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### Question 15 (6 points) ✓ Saved

Which one of the following statements is FALSE regarding infrastructure mode?


☐ Distribution System is used to connect multiple BSSs together for seamless communication.

☐ STA from one BSS can communicate with another STA from another BSS.

☒ All BSSs in ESS must be overlapping in their coverage.

☐ Infrastructure mode requires the present of an access point.

### Question 16 (6 points) ✓ Saved

Which one of the following statements is FALSE regarding infrastructure mode?

☐ Distribution System is used to connect multiple BSSs together for seamless communication.

☐ STA from one BSS can communicate with another STA from another BSS.

☐ Infrastructure mode requires the present of an access point.

Est. Length: 2:00:00

Time Taken:0:52:16

KHIU KIM HONG EEE-DEEE-FT-3A-06: Attempt 1

Page 1:

1 ✓ 2 ✓ 3 ✓

4 ✓ 5 ✓ 6 ✓

7 ✓ 8 ✓ 9 ✓

Page 2:

10 ✓ 11 ✓ 12 ✓

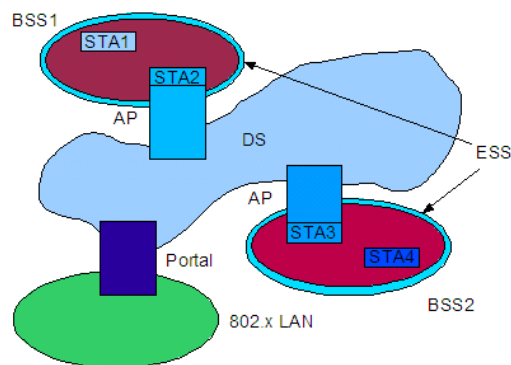
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16 ✓

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Question 15 (6 points) ✓ Saved

Which one of the following statements is FALSE regarding infrastructure mode?



- ☐ Distribution System is used to connect multiple BSSs together for seamless communication.
- ☐ STA from one BSS can communicate with another STA from another BSS.
- ☒ All BSSs in ESS must be overlapping in their coverage.
- ☐ Infrastructure mode requires the present of an access point.

Question 16 (6 points) ✓ Saved

Which one of the following statements is FALSE regarding infrastructure mode?

- ☐ Distribution System is used to connect multiple BSSs together for seamless communication.
- ☐ STA from one BSS can communicate with another STA from another BSS.
- ☐ Infrastructure mode requires the present of an access point.
- ☒ All BSSs in ESS must be overlapping in their coverage.

Previous Page

Next Page

Page 2 of 2

Submit Quiz

16 of 16 questions saved