QClass 24/25 QKD Quiz 2

Due Dec 23 at 3:59am **Points** 10 **Questions** 10
Available Dec 9 at 4pm - Dec 23 at 3:59am 13 days
Time Limit 60 Minutes **Allowed Attempts** 2

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	8 minutes	4 out of 10

Last Attempt Details:

Time:	8 minutes
Current Score:	4 out of 10
Kept Score:	4 out of 10

1 More Attempt available

Take the Quiz Again

(Will keep the highest of all your scores)

Answers will be shown after your last attempt

Score for this attempt: **4** out of 10
Submitted Dec 22 at 9:23pm
This attempt took 8 minutes.

Question 1 — 1 / 1 pts

In BB84, Asja can prepare copies of the qubit that she is sending to Balvis and send all copies to Balvis, thus increasing Balvis' probability of receiving it and keeping the security as well.

- ○ True
- ◉ False

Incorrect

Question 2 — 0 / 1 pts

In BB84, if Asja and Balvis both use Z-basis and Espian uses X- or Z-basis randomly, Espian can receive how much information correctly?

- ◉ 75 %
- ○ 100 %
- ○ 25 %
- ○ 50 %

Question 3 — 1 / 1 pts

Quantum Cryptography relies on mathematical hardness assumptions.

- ○ True
- ◉ False

Question 4

1 / 1 pts

In a classical circuit to copy a bit, which classical gate is used?

- ○ OR
- ◉ CNOT
- ○ AND
- ○ NOT

Incorrect

Question 5

0 / 1 pts

Knowing how to clone a state $\frac{1}{\sqrt{2}}(|0\rangle + |1\rangle)$, we can clone

- ◉ None of the given choices
- ○ $\frac{1}{\sqrt{2}}(|0\rangle - |1\rangle)$
- ○ $|1\rangle$
- ○ $|0\rangle$

Question 6

1 / 1 pts

In BB84, basis information is shared secretly between Asja and Balvis.

- ○ True
- ◉ False

Unanswered

Question 7

0 / 1 pts

If a state $|\psi\rangle = \frac{1}{\sqrt{2}}(|0\rangle + |1\rangle)$ is measured in Z-basis $\{|0\rangle, |1\rangle\}$ then measurement results in

- state $|0\rangle$ with probability 1/2 and state $|1\rangle$ with probability 1/2
- state $|0\rangle$ always
- state $|+\rangle = 1/\sqrt{2}(|0\rangle + |1\rangle)$
- state $|1\rangle$ always

Unanswered

Question 8

0 / 1 pts

If a state $|-\rangle = \frac{1}{\sqrt{2}}(|0\rangle - |1\rangle)$ is measured in Z-basis and yields $|0\rangle$, followed by another measurement in X-basis $\{|+\rangle, |-\rangle\}$ which results in

- state $|-\rangle$ with probability 1
- state $|+\rangle$ or $|-\rangle$ with equal probability
- state $|+\rangle$ with probability 1
- None of the given answers

Unanswered

Question 9

0 / 1 pts

In BB84, around how many bits are discarded after the announcement of basis

- 75%
- 10%
- 50%
- 25%

Unanswered

Question 10

0 / 1 pts

In BB84, if Eve intercept the channel completely and luckily measures all qubits in the same basis as Asja and Balvis , she would know the entire secret message that Asja wants to share with Balvis

-
- True
-

False

Quiz Score: **4** out of 10

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