QClass 24/25 QKD Quiz 3

Due Dec 23 at 3:59am **Points** 10 **Questions** 10
Available Dec 10 at 7pm - Dec 23 at 3:59am 12 days
Time Limit 60 Minutes **Allowed Attempts** 2

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	6 minutes	5 out of 10

Answers will be shown after your last attempt

Score for this attempt: **5** out of 10
Submitted Dec 22 at 10:19pm
This attempt took 6 minutes.

Last Attempt Details:

Time:	6 minutes
Current Score:	5 out of 10
Kept Score:	5 out of 10

1 More Attempt available

Take the Quiz Again

(Will keep the highest of all your scores)

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
-

Question 2

1 / 1 pts

Espian is trying to intercept a conversation. We already have a random list of 0 and 1's (a total of 24 values) and it's denoted by 'k'. Complete the following code that allows Espian to intercept and measure qubits using a 24-bit quantum circuit:

```
qreg1 = QuantumRegister(24)
creg1 = ClassicalRegister(24)
espian = QuantumCircuit(qreg1, creg1, name='Espian')

for m in range(24):
  if k==0:
        espian.measure(qreg1[m],creg1[m])
        espian_basis.append('Z')
  else:
        #YOUR CODE HERE#
        espian.measure(qreg1[m],creg1[m])
        espian_basis.append('X')
```

Make sure to enter the answer as per the correct syntax and avoid unnecessary spaces.

espian.h(qreg1[m])

Question 3

1 / 1 pts

In BB84, if both Asja and Balvis use X-basis and Espian uses **X**- or **Z**-basis randomly, what's the percentage that Balvis' bit string matches with that of Asja?

- (•) 75%
- ( ) 0%
- ( ) 50%
- ( ) 25%

Question 4

1 / 1 pts

The parity bit of block 1001110 is

- (•) 0
- ( )
- ( ) 1
- ( )

Incorrect

Question 5

0 / 1 pts

In post processing, quantum error correction codes are necessary

- ( ) False
- ( )
- ( )
- (•) True

Question 6

1 / 1 pts

BB84 protocol fails if error rate is not zero

- (●) False
- ( )
- ( ) True
- ( )

Unanswered

Question 7

0 / 1 pts

In six state protocol, if Espian intercepts each qubit, measures in a basis randomly chosen, she will gain information

- ( ) 33%
- ( ) 100%
- ( ) 66%
- ( ) 50%

Unanswered

Question 8

0 / 1 pts

In six-state protocol, if Espian intercepts each qubit, measures in a basis randomly chosen, she will introduce error

- ( ) 66%
- ( ) 33%
- ( ) 25%
- ( ) 50%

Unanswered

Question 9

0 / 1 pts

In six state protocol, the chances of detecting Espian's presence are more than BB84 protocol

- ( ) False
- ( ) True
- ( )
- ( )

Unanswered

Question 10

0 / 1 pts

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

- 100%
- 25%
- 75%
- 50%

Quiz Score: **5** out of 10

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