

IBM

C1000-179

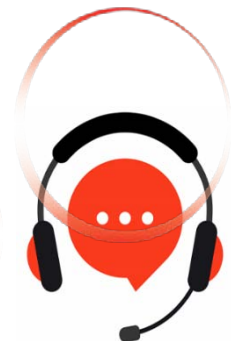
**IBM Fundamentals of Quantum Computing Using Qiskit
v2.X Developer**

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Question: 1

Which two of the following pieces of information are part of the dictionary returned by `session.details()`, assuming that `session` is an instance of `qiskit_ibm_runtime.Session`?
(Choose two)

- A. Quantum circuit depth
- B. Timestamp of the last job in the session that completed
- C. Session state
- D. Primitive options
- E. Primitive unified blocs (PUBs) in each job

Answer: B,C

Question: 2

Which code fragment is the correct way to open a session?

- A. `from qiskit_ibm_runtime import Session session = Session(system='ibm_foo')`
- B. `from qiskit_ibm_runtime import execute, QiskitRuntimeService service = QiskitRuntimeService()
session = execute(service=service)`
- C. `from qiskit_ibm_runtime import Session, QiskitRuntimeService service = QiskitRuntimeService()
session = Session(service.least_busy())`
- D. `from qiskit import QuantumCircuit session = QuantumCircuit(2).open_session()`

Answer: C

Question: 3

Which method should be used to export a Qiskit circuit named `qc` to OpenQASM 3 and store it into a file stream named `qasmprogram`?

- A. `qc.to_openqasm3(qasmprogram)`
- B. `qiskit.qasm3.dump(qc, qasmprogram)`
- C. `qasmprogram.export_to_qasm3(qc)`
- D. `qiskit.qasm3.export(qc, qasmprogram)`

Answer: B

Question: 4

Which one of the following types of register stores the result of a measured circuit?

- A. Ancillary register
- B. Quantum register
- C. Circuit register
- D. Classical register

Answer: D

Question: 5

Which format should a primitive unified bloc (PUB) tuple follow for the Estimator primitive?

- A. pub = (circuit, observable, parameter_values, backend)
- B. pub = (circuit, observable, parameter_values, precision)
- C. pub = (circuit, observable, shots, optimization_level)
- D. pub = (circuit, observable, resilience_level, noise_model)

Answer: B

Question: 6

Given the code fragment below, which of the following code fragments creates a rotation gate with an angle with an initially undefined value?

```
from qiskit.circuit import QuantumCircuit, Parameter,  
ParameterExpression  
qc = QuantumCircuit(1)
```

- A. theta = Parameter('theta') qc.rx(theta, 0)
- B. theta = 3.14 qc.rx(3.14, 0)
- C. qc.rx('theta', 0)
- D. qc.rx(ParameterExpression('theta'), 0)

Answer: A

Question: 7

Which statement describes the purpose of a Qiskit Runtime session?

- A. Automatically generate quantum algorithms based on user input
- B. Group a collection of calls to the quantum computer
- C. Visualise the results of quantum experiments in real time
- D. Compile and optimise quantum circuits for different backends

Answer: B

Question: 8

Which one of the following describes the expected behavior of the number of shots if the value for the parameter precision were changed from 0.015625 to 0.03125?

- A. It increases the number of shots quadratically
- B. It increases the number of shots exponentially
- C. It has no effect on the number of shots
- D. It decreases the number of shots

Answer: D

Question: 9

Applying the Qiskit TGate to a qubit in state $|1\rangle$ introduces which global phase?

- A. $\pi/4$ phase
- B. $-\pi/2$ phase
- C. $-\pi/4$ phase
- D. $\pi/2$ phase

Answer: A

Question: 10

Which three of the following are job execution modes in Qiskit Runtime?
(Choose three)

- A. classical
- B. session
- C. parallel
- D. quantum
- E. batch
- F. single job

Answer: B,E,F

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