

Duration: 3hrs

Max Marks:80

- N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1 Attempt any FOUR [20]
a Write a short note on The Security of Quantum Key Distribution.
b Explain Limitation of the Quantum Operations Formalism
c Explain Nuclear Magnetic Resonance.
d Explain Quantum Fourier Transform.
e Explain Stabilizer Codes.
- 2 a Explain the fundamentals of Quantum Computing [10]
b Explain Quantum Noise and Quantum Operations with suitable examples. [10]
- 3 a Differentiate between Qubit and bit. Explain with an example. [10]
b Explain Shor Code Algorithm and explain the methods of quantum error correction [10]
- 4 a Explain optical capacity quantum electrodynamics. [10]
b Explain in brief the limitations of quantum operations formalizations. [10]
- 5 a Explain quantum search for unstructured data with examples. [10]
b Explain Privacy amplification and information Reconciliation. [10]
- 6 a Explain fault tolerant quantum computations. [10]
b What is Quantum Error Correction? Explain with examples. [10]
