SEAT No. :

P-5323

[6188]-292

B.E. (Artificial Intelligence and Data Science) (Insem.)
QUANTUM ARTIFICIAL INTELLIGENCE
(2019 Pattern) (Semester - VII) (Elective - III) (417523(A))

Time : 1 Hour] | *[Max. Marks : 30*

Instructions to the candidates:

1) *Solve questions Q.1 or Q.2, Q.3 or Q.4.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Assume suitable data if necessary.*

Q1) a) Describe measurement in bases other than the computational basis. Explain each. **[5]**

b) Define Quantum Circuits. **[5]**

c) Demonstrate quantum teleportation with suitable example. **[5]**

OR

Q2) a) Describe Qubit copying circuit. **[5]**

b) Explain the Products and Tensor Products. **[5]**

c) Define Multiple Qubit Gates with example. **[5]**

Q3) a) Describe Time-Evolution of a Closed System. **[5]**

b) Describe role of measurement in quantum architecture. **[5]**

c) Explain Quantum Phase Estimation. **[5]**

OR

Q4) a) Describe applications of quantum Fourier transform. **[5]**

b) Explain universal sets of quantum gates. **[5]**

c) Describe the state of a Quantum System. **[5]**

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