Total No. of Questions : 4]

SEAT No. :

PE-324

[Total No. of Page : 1

[6580]-695

B.E. (AI&DS)(Insem)

QUANTUM ARTIFICIAL INTELLIGENCE

(2019 Pattern) (Semester - VII) (417523 A) (Elective-III)

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

Instructions to the candidates:

1) ***Attempt Q. No. 1 or Q. No. 2, and Q. No. 3 or Q. No. 4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, f necessary.***

Q1) a) Describe the differences in measurement in bases and computational basis. **[5]**

b) Explain Single qubit and multiple qubit gates with diagram. **[5]**

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

OR

Q2) a) Describe Qubit copying circuit. **[6]**

b) Draw quantum circuits diagram that represents the operations. **[6]**

c) Describe how tensor product combines qubit states? **[3]**

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

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

c) Explain Mixed States and General Quantum Operations. **[5]**

OR

Q4) a) Describe hidden sub group problem for quantum Fourier transform. **[5]**

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

c) Compare order-finding and factoring for Fourier transform. **[5]**