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SEAT No. :

PC-317

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**B.E. (Artificial Intelligence and Data Science) (Insem.)**

**DATA MODELING & VISUALIZATION**

**(2019 Pattern) (Semester - VII) (417522)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates :*

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

**Q1)** a) Explain Covariance and Central Limit Theorem. [5]

b) Differentiate between Discrete and Continuous random variables with the help of an example. [5]

c) Define Independent Variable and explain types of Independent Variables with Example. [5]

OR

**Q2)** a) Explain Data Modelling Concepts with Example. [5]

b) Explain Chebyshev inequality with the help of an example. [5]

c) Define Descriptive Statistics and Graphical Statistics. Explain different Estimation Methods. [5]

**Q3)** a) Explain Stochastic Processes with the help of an Example. [5]

b) Calculate Pi Using Monte Carlo method. [5]

c) Discuss type 1 and type 2 errors with an example. [5]

OR

**Q4)** a) Explain the steps of Hypothesis Testing. [5]

b) Differentiate between T-Test , Z-Test and F-Test. [5]

c) Explain Transition State Diagram and Emission State Diagram of Hidden Markov Model with the help of example. [5]

