P-5322

[6188]-291

B.E. (Artificial Intelligence & 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) *Figures to the right side indicate full marks.*
4) *Assume Suitable data if necessary.*

Q1) a) Explain in detail Positive, negative and zero covariance with appropriate graphs. **[5]**

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

c) Explain following discrete distributions : **[5]**

    i) Geometric distribution

    ii) Binomial distribution

OR

Q2) a) Define and explain maximum likelihood estimation. **[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) Define Poisson process. Poisson process is a suitable stochastic model in rare events. Justify? **[5]**

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

c) How does a queuing system work? What happens with a job when it goes through a queuing system? **[5]**

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

b) Draw a neat diagram of Right-tail, Left-tail and Two sided Z-test and locate Acceptance and rejection regions. **[5]**

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

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