BE ELEC Sem:VII C-scheme Nov-Dec '2025

Date: 26/11/2025

(Time: 3 Hours) [Marks: 80]

N.B.: 1) Question No. 1 is compulsory.
2) Answer any three out of remaining questions.
3) Assume suitable data if necessary.
4) Figures to the right indicate full marks.

Q1. (a) Describe the structure of an Intelligent Agent. Explain how the nature of the environment (e.g., deterministic, static, fully observable) affects agent design. **(5)**

Q1. (b) What is a state-space search? Explain its components with a suitable example and discuss why it is important in problem-solving. **(5)**

Q1. (c) Explain the difference between binary classification and multi-class classification. **(5)**

Q1. (d) Discuss the relationship between Business Intelligence (BI) and Big Data analytics. **(5)**

Q2. (a) What is Expert system?. Explain the components of it with example. **(10)**

Q2. (b) Discuss the terms Inference using Full Joint Distribution, Prior and Posterior Probability and Random variables. **(10)**

Q3. (a) Discuss the difference between OLAP (Online Analytical Processing) and OLTP (Online Transaction Processing). **(10)**

Q3. (b) Explain the Naïve Bayes Classifier and its applications. **(10)**

Q4. (a) Compare Forward Chaining and Backward Chaining. In which scenarios is each approach preferable? **(10)**

Q4. (b) With a suitable example explain Typical pre-processing operations:combining values into one , handling incomplete, incorrect and missing values, record values, sub setting . (10)

Q5. (a) Define Hadoop. Explain the role of Hadoop Distributed File System (HDFS) in Big Data. **(10)**

Q5. (b) Differentiate between Supervised and Unsupervised Learning. Explain with one example of each in detail. **(10)**

Q6. Explain **any Two**: **(20)**

I. Time series and Forecasting
II. Symmetric Multiprocessing (SMP)
III. HMM
IV. Moving Averages and Exponential Smoothing

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