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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E **Semester: VI**
Branch: Information Science and Engineering **Duration: 3 hrs.**
Course Code: 20IS6PENLP **Max Marks: 100**
Course: Natural Language Processing **Date: 20.09.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) List and explain different phases of analysis in Natural Language Processing with an example for each. **10**

b) Write the algorithm for Minimum edit distance and compute the minimum edit distance between tutor and tumour. **10**

OR

2 a) Write Regular Expression for the following: **10**

- To accept strings book or books
- To accept color and colour.
- To accept any +ve integer with an optional decimal point
- To check if a string is an email address or not.
- To accept all variations of MHz,Mhz,mHz,mhz,MegaHertz,Megahertz,megaHertz,megahertz

b) Consider the following Corpus of three sentences **10**

- There is a big garden.
- Children play in a garden
- They play inside beautiful garden

Calculate P for the sentence “They play in a big Garden” assuming a bi-gram language model.

UNIT - II

3 a) List and explain different Part-Of-Speech taggers with an example for each and also show the necessary calculations for the same. **10**

b) Construct the Surface structure and Deep Structure for the following sentences: **10**

- The Police will catch the snatchers.
- She saw stars in the sky.

OR

4	a)	Explain the parameters of Context Free Grammar in Natural Language Processing with an example and discuss four major different Sentence-level constructions used on English sentences.	**10**
	b)	Elucidate the need of lexicalized grammar and discuss Combinatory Categorial Grammar with the elements and example.	**10**

UNIT - III

5	a)	Explain Cosine for measuring similarity in semantic analysis with example.	**10**
	b)	Explain TF-IDF in detail with example.	**10**

UNIT - IV

6	a)	Explain Naïve Bayes classifier and Maximum Entropy classifier.	**10**
	b)	What is a Decision Tree? List the Advantages and Disadvantages of a Decision Tree. How does Entropy and Information Gain influence the construction of Decision Tree?	**10**

UNIT - V

7	a)	Explain the architecture of an Information Retrieval system with a neat diagram.	**10**
	b)	Explain automatic text categorization and machine translation.	**10**

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