GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3170723   **Date:19-11-2024**
Subject Name: Natural Language Processing
Time:10:30 AM TO 01:00 PM   **Total Marks:70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	State various python libraries of NLP.	**03**
	(b)	Give advantages and disadvantages of Natural Language Processing.	**04**
	(c)	State phases of Natural Language Processing. Explain each step for the following statement: "GTU is the winner of Robocon 2023."	**07**
Q.2	**(a)**	Differentiate backoff and interpolation.	**03**
	(b)	Give the formula to find perplexity in Unigram and Bigram language model.	**04**
	(c)	Explain Laplace Smoothing technique with example.	**07**
		OR	
	(c)	Explain Named Entity Recognition with example.	**07**
Q.3	**(a)**	Define collocation feature of word.	**03**
	(b)	Give the role of skip-grams in NLP.	**04**
	(c)	Explain the nearest neighbor algorithm for WSD with suitable diagram.	**07**
		OR	
Q.3	**(a)**	Define hyponymy and hypernymy.	**03**
	(b)	Explain Word–in–Context task with example.	**04**
	(c)	Write and explain simplified Lesk Algorithm.	**07**
Q.4	**(a)**	State the attributes of relation extraction.	**03**
	(b)	Explain basic algorithm for text classification.	**04**
	(c)	Write a short note on Sentiment Mining.	**07**
		OR	
Q.4	**(a)**	State the advantages of Cross-Lingual IR.	**03**
	(b)	Explain features of text summarization.	**04**
	(c)	Discuss the steps for information extraction in detail.	**07**
Q.5	**(a)**	Define referential density with example.	**03**
	(b)	Write wordpiece Algorithm.	**04**
	(c)	Discuss Neural Machine Translation with example.	**07**
		OR	
Q.5	**(a)**	Define SVO, VSO, SOV.	**03**
	(b)	Explain morphological typology.	**04**
	(c)	Discuss knowledge-based Machine Translation System.	**07**

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