

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023

Subject Code:3170723**Date:01-12-2023****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) Explain the components of NLP.	03
	(b) Explain in detail: NLP API and Libraries.	04
	(c) Write a short note on How to Build an NLP Pipeline.	07
Q.2	(a) Explain Parts of Speech Tagging and its importance.	03
	(b) Explain Bigram, Trigram and N-gram with example.	04
	(c) List and explain Smoothing techniques used in NLP.	07
OR		
	(c) Draw the architecture of NLG system and explain its stages in detail.	07
Q.3	(a) Write a short note on Named Entity Recognition	03
	(b) Write a short note on: <ol style="list-style-type: none"> a.) CBoW (Continuous bag of words) b.) Skip-gram 	04
	(c) Explain Word Sense Disambiguation with nearest neighbor algorithm.	07
OR		
Q.3	(a) What do you mean by Word Embeddings?	03
	(b) What is Morphology? Explain the approaches to Morphology.	04
	(c) For the given corpus: <p>D1: The cat sat on the mat. The cat was white. D2: The brown colored dog was barking loudly at the cat. D3: The mat was green in color. D4: The dog pulled the mat with his teeth. The cat still sat on the mat.</p> Calculate: <ol style="list-style-type: none"> a.) Term Frequency - tf b.) Inverse document frequency – idf c.) Term frequency inverse document frequency - tfidf 	07
Q.4	(a) How is Text Classification and Text Summarization works in NLP? Explain in detail.	03
	(b) What is Information Extraction? How Does Information Extraction Work?	04
	(c) Describe Cross-lingual-Information-Retrieval in NLP.	07
OR		
Q.4	(a) What is Sentiment Mining and How Does it Work?	03
	(b) What is Relation Extraction in NLP? State the algorithm for Relation Extraction.	04
	(c) Explain IR-based question answering model with different phases.	07

- Q.5** (a) What is the Need of Machine Translation? Discuss the Problems of Machine Translation. **03**
- (b) Differentiate: Statistical Vs Rule Based Machine Translation **04**
- (c) Explain Encoder-decoder Model of Machine Translation with architecture. **07**

OR

- Q.5** (a) Explain Knowledge Based MT System. **03**
- (b) What are the characteristic required for neural machine translation? **04**
- (c) How Direct Machine Translations Approach works in NLP? **07**
