

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3170723****Date: 21/06/2023****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) State various applications of NLP in real life.	03
	(b) Explain components of NLP. Also state the differences between them.	04
	(c) Explain Phases of Natural Language Processing in detail.	07
Q.2	(a) What is meant by the semantics of a natural language? How does this differ from the pragmatics?	03
	(b) What is Natural Language Generation? Explain in brief.	04
	(c) Explain Unigram, Bi-gram and Tri-gram concepts using an example sentence: "This is a sentence".	07
	OR	
	(c) Explain steps to build an NLP pipeline in detail.	07
Q.3	(a) Give the Name of ambiguity in the following sentences. <ol style="list-style-type: none"> 1. "The boy saw the girl with the telescope." 2. "The horse ran up the hill. It was very steep. It soon got tired." 3. "The car hit the pole while it was moving." 	03
	(b) Explain "Continuous bag of words" with an example.	04
	(c) Enlist Word Sense Disambiguation approaches. Explain any one of them in detail.	07
	OR	
Q.3	(a) Draw the dependency tree for following sentence: "The Black Car hit the big Motorcycle"	03
	(b) How does the parser work? Explain in detail.	04
	(c) Explain the concept of Part-of-Speech tagging with a given example: "Janet will back the bill".	07
Q.4	(a) Explain the concept of Cross-Lingual Information Retrieval in detail.	03
	(b) Explain any one Smoothing technique with the help of an example.	04
	(c) Explain stages of IR-based question answering models.	07
	OR	
Q.4	(a) Explain Precision and Recall in brief.	03
	(b) Explain 10-fold cross-validation in detail.	04
	(c) How does Named Entity Recognition work? What are the applications of Named Entity Recognition? Explain the concept with an example.	07
Q.5	(a) Write a short note on Neural Machine Translation.	03
	(b) Write a short note on Knowledge-based machine translation.	04
	(c) What is Machine Translation? What are the applications of Machine Translation?	07
	OR	
Q.5	(a) Explain translation divergence in brief.	03
	(b) Draw and Explain Encoder- Decoder architecture in detail.	04
	(c) Explain the concept of SMT and NMT in detail. Also state the differences between them.	07
