

Enrolment No./Seat No\_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3170723

Date:13-11-2025

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) Briefly explain component of NLP.	03
	(b) Describe advantages and disadvantages of Natural Language Processing.	04
	(c) Elaborate various phases in Natural Language Processing.	07
Q.2	(a) How does Natural Language Generation works?	03
	(b) Describe Part-of-Speech Tagging with suitable example.	04
	(c) Enlist various Smoothing Techniques. Explain any one in detail.	07
<b>OR</b>		
	(c) Explain Unigram, Bi-gram and Tri-gram concepts using an example sentence: “Life is either a daring adventure or nothing at all”.	07
Q.3	(a) Describe skip-gram.	03
	(b) Explain “Continuous bag of words” with an example.	04
	(c) Describe nearest neighbor algorithm for Word Sense Disambiguation.	07
<b>OR</b>		
Q.3	(a) Explain perplexity with suitable example.	03
	(b) Describe Embedding representations for words Lexical Semantics with example.	04
	(c) How does the Lesk algorithm help in Word Sense Disambiguation?	07
Q.4	(a) What is sentiment mining? Provide a brief explanation.	03
	(b) Write a short note on Named Entity Recognition.	04
	(c) Explain the concept of Cross-Lingual Information Retrieval in detail.	07
<b>OR</b>		
Q.4	(a) How is Text Classification and Text Summarization works in NLP?	03
	(b) State different algorithms used for relation extraction.	04
	(c) Explain stages of IR-based question answering models.	07

- Q.5** (a) Discuss the Problems of Machine Translation. **03**  
(b) Explain neural machine translation with suitable example. **04**  
(c) How is parameter learning conducted in Statistical Machine Translation (SMT)? Illustrate with an appropriate example. **07**

**OR**

- Q.5** (a) Explain translation divergence in brief. **03**  
(b) Describe Rule Based Machine Translation System. **04**  
(c) Explain Encoder-decoder Model of Machine Translation with architecture. **07**

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