Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2021

Subject Code:3170723 Date:17/12/2021

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 advantages and disadvantages of Natural Language Processing.	**03**
	(b)	Explain components of Natural Language Processing.	**04**
	(c)	Explain phases of Natural Language Processing in detail.	**07**
Q.2	**(a)**	Explain Markov model in brief.	**03**
	(b)	Explain Add-k smoothing with example.	**04**
	(c)	Describe Kneser-Ney smoothing with suitable example.	**07**
		OR	
	(c)	Describe Part-of-Speech Tagging with suitable example.	**07**
Q.3	**(a)**	Give the intuition of skip-gram.	**03**
	(b)	Explain word embedding in brief.	**04**
	(c)	Describe nearest neighbor algorithm for Word Sense Disambiguation.	**07**
		OR	
Q.3	**(a)**	Give the example of bag-of-words model.	**03**
	(b)	Explain knowledge-based method to WSD.	**04**
	(c)	Describe various relations between senses with suitable example.	**07**
Q.4	**(a)**	Give the examples of temporal lexical triggers.	**03**
	(b)	Create a confusion matrix for visualizing how well a binary classification system performs against gold standard labels.	**04**
	(c)	Explain stages of IR-based question answering model.	**07**
		OR	
Q.4	**(a)**	State different algorithms used for relation extraction.	**03**
	(b)	Create Confusion matrix for a three-class categorization task.	**04**
	(c)	Explain how Natural Language Processing is useful in Information Retrieval.	**07**
Q.5	**(a)**	Explain translation divergence in brief.	**03**
	(b)	Write a short note on rule-based machine translation.	**04**
	(c)	Explain the training of Encoder-Decoder Model with RNNs.	**07**
		OR	
Q.5	**(a)**	Explain SVO, SOV and VSO in brief.	**03**
	(b)	Write a short note on direct machine translation.	**04**
	(c)	How does parameter learning in SMT performed? Explain with suitable example.	**07**

****