

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

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:3170723****Date:14/06/2022****Subject Name:Natural Language Processing****Time:02:30 PM TO 05:00 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.

- Q.1** (a) Explain NLP pipeline? **03**
(b) Explain Markov model in brief. **04**
(c) Explain phases of Natural Language Processing in detail. **07**

- Q.2** (a) Explain Unigram Language Model. **03**
(b) Differentiate between Bigram and Trigram. **04**
(c) List down all Applications of Language Modeling and explain any two. **07**

OR

- (c) With suitable example describe Part-of-Speech Tagging. **07**

- Q.3** (a) Describe skip-gram. **03**
(b) Explain Named Entity Recognition. **04**
(c) Describe Embedding representations for words Lexical Semantics with example. **07**

OR

- Q.3** (a) Explain word embedding in brief. **03**
(b) Short note on Comparison of Smoothing Techniques. **04**
(c) Describe nearest neighbor algorithm for Word Sense Disambiguation. **07**

- Q.4** (a) What is Sentiment Mining? **03**
(b) State different algorithms used for relation extraction. **04**
(c) For Information Retrieval how we can use NLP? **07**

OR

- Q.4** (a) State different algorithms used for relation extraction. **03**
(b) Short note on Cross-Lingual IR. **04**
(c) Describe phases of IR-based question answering model. **07**

- Q.5** (a) Why we need Machine Translation. **03**
(b) Write a short note on rule-based machine translation. **04**
(c) Explain with example how does parameter learning in SMT performed? **07**

OR

- Q.5** (a) Explain Problems of Machine Translation. **03**
(b) Describe Knowledge Based Machine Translation System. **04**
(c) Describe Encoder-decoder architecture with diagram. **07**
