R22 Regulation *Subject code:4E6GA & 4E6HB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Regular/Supplementary Examinations, April 2026

NATURAL LANGUAGE PROCESSING

(Common to CSE(AI&ML) & CSE(DS))

Maximum Marks: 60 Date:16.04.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x1M=10 Marks)		Marks	CO	BTL
1a)	Why do we need to do morphological analysis?	1M	1	L1
b)	What are the components of a word?	1M	1	L1
c)	What is the need of parsing of a sentence	1M	2	L1
d)	What is the difference between syntax and semantics?	1M	2	L1
e)	What is meant by the semantics of a natural language?	1M	3	L1
f)	List the methods for ambiguity resolution.	1M	3	L1
g)	What is a predicate in NLP?	1M	4	L1
h)	What are semantic roles?	1M	4	L1
i)	What is the purpose of a language model in NLP?	1M	5	L1
j)	What is smoothing in N-gram models?	1M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Explain various issues in Computational morphology. Illustrate with examples. b) Identify the morphological type (Noun phrase, Verb Phrase, Adjective Phrase) of following sentence segments i.Important to Bill ii.Looked up the tree	5M 5M	1 1	L2 L3
	OR			
3	a) Analyze the computational complexity of document structure methods. b) Compare performance of traditional vs modern approaches.	5M 5M	1 1	L4 L4
4	a) What are the issues in parsing? Describe various techniques used for parsing with suitable example. b) Explain the concept of treebanks and their role in NLP.	5M 5M	2 2	L2 L2
	OR			

5	a) Perform parsing using simple top-down parsing for the sentence "The dogs cried" using the grammar given below: S->NP VP NP->ART N NP->ART ADJ N VP->V VP->V NP b) Differentiate between top-down and bottom-up parsing.	5M 5M	2 2	L3 L2
6	a) Classify the problem of ambiguity with example. b) Describe different roles used in the semantic analysis with example.	5M 5M	3 3	L2 L2
	OR			
7	a) Illustrate different algorithms for Word Sense Disambiguation. b) Describe various relations between senses with suitable example.	5M 5M	3 3	L3 L2
8	a) Discuss meaning representation and resources involved in it. b) Analyze the advantages and limitations of different meaning representation techniques.	5M 5M	4 4	L3 L4
	OR			
9	a) How semantic representations are used in NLP explain with examples? b) What are common approaches (rule-based, statistical) to build semantic parsers?	5M 5M	4 4	L3 L2
10	a) What is language model? Write a note on N-Gram language model. b) Evaluate any one of the language models with example	5M 5M	5 5	L3 L5
	OR			
11	a) Explain how is perplexity calculated in evaluating N-grams. b) Why is generalization important in language modeling, and how does it affect model performance?	5M 5M	5 5	L2 L3