Course Code: **23AM5T03**

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(AUTONOMOUS)

III - B. Tech I-Semester Supplementary Examinations (BR23), Mar/Apr - 2026

NATURAL LANGUAGE PROCESSING (AI&ML)

Time: 3 hours Max. Marks: 70

Question Paper consists of Part-A and Part-B
*Answer **ALL** the question in **Part-A and Part-B***

PART–A (10X2 = 20M)

		Marks	CO	BL
1. a)	What is Finite State Automata (FSA) in NLP?	(2M)	CO1	BL3
b)	Define Morphology in the context of English.	(2M)	CO1	BL2
c)	Give examples of common word classes.	(2M)	CO2	BL1
d)	Define Backoff technique.	(2M)	CO2	BL1
e)	Define Probabilistic Context-Free Grammar (PCFG).	(2M)	CO3	BL3
f)	Define Dependency Grammar.	(2M)	CO3	BL1
g)	What is a Thesaurus?	(2M)	CO4	BL1
h)	Indicate two supervised approaches used in Word Sense Disambiguation.	(2M)	CO4	BL2
i)	State the importance of reference phenomena in discourse analysis.	(2M)	CO5	BL3
j)	Mention the techniques used for discourse segmentation.	(2M)	CO5	BL4

PART–B (5X10 = 50M)

2a.	Discuss the importance of Regular Expressions in NLP with examples.	5(M)	CO1	BL2
b.	Explain the concept of Minimum Edit Distance and how it is used in spell correction.	5(M)		BL1
	(OR)			
3a.	Explain Tokenization and its importance in text pre-processing.	5(M)	CO1	BL3
b.	Write short notes on Language Modelling and its applications in NLP systems.	5(M)		BL4
4a.	Explain N-gram models and discuss their applications in NLP.	5(M)	CO2	BL3
b.	Explain how transition and emission probabilities are estimated in HMMs.	5(M)		BL1
	(OR)			
5a.	Compare Rule-based, Stochastic, and Transformation-based PoS tagging.	5(M)	CO2	BL2
b.	Discuss Maximum Entropy Models and their use in word classification.	5(M)		BL4
6a.	Explain the concept of Feature Structures and their importance.	5(M)	CO3	BL4
b.	Discuss the Dynamic Programming Parsing approach in NLP.	5(M)		BL3
	(OR)			
7a.	Explain the structure and components of a Treebank.	5(M)	CO3	BL5
b.	Discuss the process of parsing and types of syntactic parsers.	5(M)		BL2
8a.	Explain the role of Thematic Roles and Selectional Restrictions in semantics. Describe First-Order Logic and its role in semantic interpretation.	5(M)	CO4	BL2

b.		5(M)		BL3
	(OR)			
9a.	Describe different methods of Word Sense Disambiguation (WSD).	5(M)	CO4	BL4
b.	Illustrate how Semantic and Pragmatic information improve text understanding.	5(M)		BL5
10a.	Explain Centering Algorithm for resolving references in discourse.	5(M)	CO5	BL3
b.	Describe the significance of Corpora such as Penn Treebank, Brown Corpus, and BNC.	5(M)		BL4
	(OR)			
11a.	Explain how Brill's Tagger and Frame Net contribute to lexical and semantic analysis.	5(M)	CO5	BL1
b.	Discuss Discourse Segmentation and its techniques.	5(M)		BL2

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