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K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Nov – Dec 2024
Program: M.Tech Scheme : II
Examination: FY Semester: I
Course Code: PCEDLC1042 and Course Name: Natural Language Processing

Date of Exam: 15/01/2025 Duration: 2.5 Hours Max. Marks: 60

Instructions:
(1)All questions are compulsory.
(2)Draw neat diagrams wherever applicable.
(3)Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any **two** questions out of three: (05 marks each)	10		
a)	Explain the Generic NLP system with diagram.		CO1	U
b)	Apply Porter Stemmer algorithm on the word "verification".		CO2	AP
c)	Explain Stochastic POS tagging with an example.		CO3	U
Q 2	Solve any **two** questions out of three: (05 marks each)	10		
a)	Design Finite State Transducer for a sample word.		CO2	AP
b)	Explain syntactic and semantic constraints on co references.		CO5	U
c)	Explain Question answer system.(3 M) List applications of it.(2 M)		CO6	U
Q.3	Solve any **two** questions out of three. (10 marks each)	20		
a)	Demonstrate how N-gram models can be applied to improve spelling correction in natural language processing, and what are the limitations of using N-grams compared to more advanced methods like neural networks?		CO2	AP

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b)	What is PENN TREEBANK? (2 M). Explain POS tagging(2 M) Explain Rule based POS tagging with example.(4 M) List issues of Rule based POS tagging. (2 M)		CO3	U
c)	Explain WSD with block diagram (4 M) . Explain the Dictionary-based approach for Word Sense Disambiguation (WSD) with a suitable example. (6 M)		CO4	U
Q.4	Solve any **two** questions out of three. (10 marks each)	20		
a)	Illustrate working of Simplified Lesk's algorithm considering a suitable example.		CO4	AP
b)	For the sentences given below S1 : Smith was playing with cat. S2 : It climbed the tree. . Prepare parse tree.(4 M) a. Apply Hobb's algorithm to resolve the coreference for "it" list and demonstrate all steps. Mention the semantic constraints checked. (6M)		CO5	AP
c)	List different applications of NLP. Explain in detail design of Sentiment Analysis system for tweeter tweets of a movie.		CO6	AP

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