

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

May-June 2025-26

(B. Tech / M. Tech.) Program: Information Technology B.Tech Scheme :III

Regular/Supplementary Examination: TY Semester: VI

Course Code: ITC 602 and Course Name: Natural Language Processing

Duration: 02.5 Hours

Max. Marks: 60

Date of Exam: 20/5/2026

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 inflection and derivation morphology.		CO2	U
b)	Discuss sense inventory also explain its role in WSD.		CO4	U
c)	Differentiate between pre-training and fine-tuning.		CO6	An
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Describe the generic architecture of an NLP system.		CO1	U
b)	Explain POS (Part of Speech) tagging with its different types.		CO3	U
c)	Discuss BLEU score. How is it used to evaluate dialogue systems?		CO5	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Explain Rhetorical Structure Theory (RST). Also discuss how RST helps in improving text summarization and Question Answering (QA) systems with example.		CO5	Ap
b)	Explain the working of Hidden Markov Model (HMM) with example.		CO3	Ap
c)	Explain the different stages involved in Natural Language Processing (NLP) also compare stemming and lemmatization with suitable examples.		CO1	U
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Discuss the N-gram Language model and also explain different types of smoothing techniques.		CO2	U
b)	Write a short note on: i. WSD (Word Sense Disambiguation) ii. Wordnet and Framenet		CO4	U
c)	Explain Sentiment Analysis and discuss its real-world applications with suitable examples.		CO6	Ap