

Time: 3 hours

Total Marks: 80

**N.B.:** 1) Question No.1 is compulsory.

2) Attempt any three from the remaining five questions.

1. Write Short Notes on the following: - (20)
- (a) Text Summarization
  - (b) Sentiment Analysis.
  - (c) Porter's Stemmer.
  - (d) Prepositional Phrases

2. (a) What is POS tagging. Explain different techniques of POS tagging. (10)
- (b) Explain CFG with suitable example. Describe following potential problem in CFG such as (10)
- 1)Agreement 2)Sub Categorization 3)Movement

3. (a) What is Automata? Explain FSA with example. (10)
- (b) Explain Text Classification in detail. (10)

4. (a) Derive the sentence "John ate an apple" using top down or bottom up parsing. (10)
- Compare Top down parsing with Bottom up parsing.
- Use the following grammar rules to create the parse tree:

1. S->NP VP	5. NAME->John
2.VP->VNP	6. V->ate
3.NP->NAME	7. ART->an the
4.NP->ART N	8. N->apple

- (b) Explain with suitable examples following relationships between word meanings: Homonymy, Polysemy, Synonymy, Antonymy, Hypernymy, Hyponymy. (10)
5. (a) Describe Hidden Markov Model (HMM). (10)
- (b) Write a note on Morphological parsing with FST. (10)
6. (a) Define generic NLP system with a diagram (5)
- (b) State different applications of NLP. (5)
- (c) Define morpheme, stem and affixes. (5)
- (d) Discuss ambiguities in NLP. (5)