Total Marks: 80   **Duration: 3 Hrs**

Note: 1) Question No.1 is compulsory.

       2) Attempt any three questions out of the remaining five questions.

       3) Figures to the right indicate full marks.

Q. 1 a) What is morphology? Why do we need to do Morphological   10
Analysis? Explain derivational & inflectional morphology in
detail with suitable examples.

     b) What is Natural language processing (NLP)? Discuss various   10
stages involved in NLP process with suitable example.

Q. 2 a) Explains with suitable examples following relationships between   10
word meanings:
1)Homonymy 2) Polysemy   3) Synonymy   4)Antonymy
5)Hypernomy 6)Hyponymy 7) Meronomy

     b) Explain CFG with suitable example. Discuss following potential   10
problems in CFG such as 1) Agreement 2) Sub categorization 3)
Movement

Q. 3 a) What is semantic analysis? Why semantic analysis is difficult?   10
Explain various approaches to perform semantic analysis.

     b) What do you mean by word sense disambiguation (WSD)?   10
Discuss dictionary based approach for WSD.

Q. 4 a) What is parsing? Explain Top-down & Bottom-up approach of   10
parsing with suitable example.

     b) What is language model? Write a note on N-Gram language   10
model.

Q. 5 a) What is stemming. Explain Porter's stemming algorithm with   10
suitable examples.

     b) Discuss various approaches to perform POS tagging.   10

Q. 6   Write a note on : (any 2)   20
   a) Sentiment Analysis.
   b) Text summarization.
   c) Wordnet.
   d) Information Retrieval