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 Analysis? Explain derivational & inflectional morphology in detail with suitable examples.   10

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

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

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

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

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

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

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

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

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