

- N. B.: (1) All questions are compulsory.
 (2) Make suitable assumptions wherever necessary and state the assumptions made.
 (3) Answers to the same question must be written together.
 (4) Numbers to the right indicate marks.
 (5) Draw neat labeled diagrams wherever necessary.
 (6) Use of Non-programmable calculators is allowed.

1. Attempt any two of the following: 12
 - a. What is NLP? Explain any five applications of NLP.
 - b. Write a short note on Named Entity Recognition.
 - c. What Types of ambiguity available in NLP? Describe various Approaches and Methods to Word Sense Disambiguation.
 - d. Explain finite state transducer with example.

2. Attempt any two of the following: 12
 - a. Write a short note on Discourse Representation Theory.
 - b. What is context free grammar? Explain with suitable example.
 - c. How unary rules are handled in the CKY algorithm?
 - d. What is Natural language generation? What are the issues in it?

3. Attempt any two of the following: 12
 - a. What are the common problems with part of speech tagging systems? Describe In detail.
 - b. How rule-based approaches work in part of speech tagging? Also write about its two-stage architecture and properties.
 - c. What is transformation-based learning? Also, explain the working of Transformation Based Learning.
 - d. What is confusion matrix? What are its four basic terminologies? Also write the definition and formula of accuracy, precision and recall.

4. Attempt any two of the following: 12
 - a. Describe Generative Models. Also compare it with PCFG model.
 - b. What is Indian Language Parsing in Paninian Karaka Theory? Explain with respect to a default karaka chart and transformation rules.
 - c. What is Learning Algorithms in malt parsing? Also write about Learning and Parsing.
 - d. Explain the working of Global Discriminative Models in detail.

5. Attempt any two of the following: 12
 - a. What is idiomaticity? Enlist and explain in detail the subtype of idiomaticity.
 - b. Write a short note on Applications of Word Sense Disambiguation.
 - c. What is MWEs? Explain Linguistic Properties of MWEs Idiomaticity property of its in detail.
 - d. Explain the Kolmogorov complexity in detail.