

Time: 3 hours

Total Marks: 80

- N.B. 1. Question No. 1 is compulsory
2. Attempt any **three** questions from remaining five questions
3. Assume suitable data if **necessary** and justify the assumptions
4. Figures to the **right** indicate full marks

- Q1 **Answer the Following.** 20
- A Define Affixes. Explain types of Affixes 05
- B Compare Information Retrieval and Information extraction in detail 05
- C Discuss reference resolution problem in detail. 05
- D Explain types of word classes in English natural language processing 05
- Q2 A Discuss Hobbs algorithm for Pronoun Resolution. 10
- B Illustrate inflectional and derivational morphology with an example 10
- Q3 A Explain Porter Stemmer algorithm in detail. 10
- B What is Word Sense Disambiguation? Explain Dictionary based Approach for Word Sense Disambiguation. 10
- Q4 A Explain hidden Markov model for POS based tagging. 10
- B Explain preprocessing steps of NLP with example in detail 10
- Q5 A b) Consider the following corpus: 10
- `<s> I am Sam </s>`
`<s> I like college </s>`
`<s> Do Sam like college </s>`
`<s> Sam I am </s>`
`<s> Do I like Sam </s>`
`<s> Do I like college </s>`
`<s> I do like Sam </s>`
- List all possible bigrams. Compute conditional probabilities and predict the next word for the word i) like ii) Sam
- B Explain Machine Translation system in detail. 10
- Q6 A Discuss various challenges and applications of NLP in detail. 10
- B Write a short note on: 10
- i) Perplexity of any language model
- ii) Rule based taggers
