

[5059] - 651

**B.E. (Computer Engineering)**

**MULTIDISCIPLINARY NATURAL LANGUAGE PROCESSING**

**(2012 Pattern) (Elective - II) (Semester - I)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:-*

- 1) *Answer Q1 or Q2 , Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data if necessary.*

**Q1) a)** Define the following terms: **[6]**

i) Parsing ii) Robust Parsing

b) Explain Automatic Stochastic Tagging of natural language texts. **[4]**

OR

**Q2) a)** Explain the significance of Lexical Knowledge Networks in NLP. **[6]**

b) Write a short note on : Viterbi algorithm of FSM process. **[4]**

**Q3) a)** Illustrate the Basic steps of EM algorithm alongwith it's Analysis. **[6]**

b) Explain in short : Forward Backward probability.. **[4]**

OR

**Q4) a)** Define HMM. Draw the diagram that shows Ergodic and non-ergodic models **[6]**

b) What is Conditional Random Field (CRF)? How it is advantages than HMM? **[4]**

- Q5) a)** Explain the following levels of Speech chain: [8]  
i) Linguistic level  
ii) Physiological level  
iii) Acoustic level

- b)** What is Speech Disorders ? Give it's Causes. [8]

OR

- Q6) a)** Explain Sentence-level Phenomena. Explain how it differs from adaptation level phenomenon. [8]

- b)** Define Speech Perception. Explain it's role in recognition of speech. [8]

- Q7) a)** What do you mean by Multilingualism? Differentiate between Multilingualism and bilingualism, [8]

- b)** Explain in short the following approaches of Word Sense Disambiguation. [8]

- i) Knowledge-Based  
ii) Supervised  
iii) Unsupervised

OR

- Q8) a)** Explain Multilingual Dictionary. Also Explain automatic detection of Multilingual Dictionaries on the Web. [8]

- b)** Write a note on: Semantic role [8]

- Q9) a)** Explain the following terms of NLP applications: [10]

- i) Web mining  
ii) Text mining

- b)** What is Cross Lingual Information Retrieval ? Explain it. [8]

OR

- Q10) Write a Note on:** [18]

- a) Robust and Scalable Machine Translation  
b) Question Answering in Multilingual Setting  
c) Sentiment Analysis

