

9. Compare the following :

4 × 4 = 16

- (i) Top-down with bottom up parsing
- (ii) Forward chaining with backward chaining
- (iii) Unambiguous and Unambiguous desiderate representations
- (iv) Semantic analysis with Practical semantic analysis

Roll No.

67108-N

**MCA 3rd Semester (MCA 2 Year
Programme) w.e.f. 2021-22
Examination – July, 2022
NATURAL LANGUAGE PROCESSING & SPEECH
RECOGNITION ELECTIVE-II (iii)
Paper : 21MCA23DB2**

Time : Three hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Units. Question No. 1 is compulsory. All questions carry equal marks.

COMPULSORY QUESTIONS

1. Answer the following questions : 2 × 8 = 16
- (a) What do you mean by pragmatic ambiguity ?
 - (b) Why is tokenization used ?
 - (c) Write the full form of TTS.

- (d) How can the pronunciation in humans affect the speech recognition ?
- (e) Define tagset of a language.
- (f) How is acoustic probability associated with speech recognition ?
- (g) Why CFG is used to represent natural language in parsing ?
- (h) Comment on the statement – RNN is the best method of speech recognition.

UNIT – I

2. What is NLP ? What are the constituents of a morphological parser ? Explain lexicon and morphotactics by suitable examples. 16
3. (a) Write regular expression for the following : 2, 2, 4
 - (i) The set of all alphabetic strings
 - (ii) The set of all lowercase alphabetic strings ending with b
 - (iii) All strings which start at the beginning of the line with an integer (1, 2, 3,) and which end at the end of the line with a word
- (b) Explain the human morphological processing in detail. 8

UNIT – II

4. What is a noisy channel ? How can we use Bayesian inference model for correction of spellings and pronunciation. 16
5. Explain any *four* of the following terms : $4 \times 4 = 16$
 - (i) Phoneme
 - (ii) Minimum edit distance
 - (iii) Smoothing
 - (iv) Backoff
 - (v) N-grams

UNIT – III

6. Illustrate the components of a basic speech recognition system and explain the working of each component. 16
7. (a) Explain the approach of Transformation based learning. 10
- (b) What do you mean by disfluencies ? How can a these be treated in a lexicon like regular word ? 6

UNIT – IV

8. What do you understand by unification ? Explain the use of its data structure in speech recognition process with some examples of your choice. Also elaborate some problems associated with it. 16