

Unit-IV

8. Comment on the problems associated with the top-down parser. How can these be overcome? 10
9. (a) Critically compare the method of partial parsing with full parsing.
- (b) Explain the Chomsky hierarchy of grammars. How can one tell if a grammar is not regular? Explain. 8,8

67108-N

(4)

RR-500

Roll No. _____

Total No. of Questions : 9 | Total No. of Pages : 4

67108-N

MCA 3rd Semester (Regular) Examination,

February-2022

(MCA 2 Years Programme)

(w.e.f. 2020-21)

Paper-21MCA23D82

**NATURAL LANGUAGE PROCESSING AND
SPEECH RECOGNITION ELECTIVE II (B)**

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 Unit. Q. No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. Answer the following :
- (a) Define Automata.

67108-N

(1)

RR-500 P.T.O.

- (b) Name different morphologies of a sentence.
- (c) How does phoneme associated with TTS?
- (d) What is N-grams for spelling?
- (e) Name the steps of speech tagging.
- (f) What do you understand by Context Free Grammar?
- (g) What are the challenges in NLP?
- (h) Is there semantics of a natural language? Justify your answer. 2×8=16

Unit-1

- 2. (a) What is NLP? With a neat diagram describe how a typical NLP system is organised?
- (b) Write the expansions and examples of the regular expressions :
 $\backslash d \ \backslash D \ \backslash W \ \backslash S$ 8,8
- 3. (a) What is Regular Expression? Explain the basic operations of concatenation, distinction, closures and anchors for symbols with suitable examples.
- (b) Write the algorithm to convert any NFSA to a DFSA. 8,8

Unit-II

- 4. (a) Elaborate the PLSA technique of modeling with suitable diagrams.
- (b) How do the probabilistic model and minimum edit distance associated? Explain three methods of representing differences between sequences. 8,8
- 5. Write short notes on any four of the following terms along with suitable examples :
 - (i) Smoothing
 - (ii) MLE
 - (iii) Cognitive Errors
 - (iv) Entropy
 - (v) Markov chain 4×4=16

Unit-III

- 6. Draw a neat diagram of schematic architecture for simplified speech recognizer and explain its components. 16
- 7. (a) Write a brief overview of Hidden Markov Models.
- (b) Explain the process of rule based Part-of-Speech Tagging using suitable example(s). 8,8