

Roll No.

23738

**M. Tech. 2nd Semester (Artificial
Intelligence and Data Science)
Examination – June, 2023**

**NATURAL LANGUAGE PROCESSING AND SPEECH
RECOGNITION**

Paper : 21MTAI22C2

Time : Three Hours]

[Maximum Marks : 100

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 Section. Question No. 1 is compulsory. All questions carry equal marks.

1. Write short note on the following : 20
- (a) Morphology
 - (b) Entropy
 - (c) Tagging
 - (d) CFG

23738-100-(P-3)(Q-9)(23)

P. T. O.



SECTION – I

2. (i) Define Ambiguity. What are the reasons for ambiguity in NLP? 10
(ii) Describe in detail about machine translation and its types. 10
3. Describe the following : 20
(i) Representation of Vector Space
(ii) Morphological Parsing with FST

SECTION – II

4. Explain the following : 20
(i) Latent semantic analysis
(ii) Non-negative matrix factorization
5. Describe Bayesian approach in spell checking with suitable example. 20

SECTION – III

6. (i) What is H.M.M ? Describe it with a suitable example. 10
(ii) Describe rule based part of speech tagging in detail. 10
7. What do you understand by context free grammar ? Explain in detail. 20

23738- (P-3)(Q-9)(23) (2)

SECTION – IV

8. Explain the following : 20
(i) PCFG
(ii) The earley algorithm
9. Describe the following : 20
(i) Matrix factorization models
(ii) Syntax driven semantic analysis

23738- (P-3)(Q-9)(23) (3)