

**Code No: 156FK****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, August/September - 2024****NATURAL LANGUAGE PROCESSING****(Common to CSE(AI&ML), AI&ML)****Time: 3 Hours****Max. Marks: 75**

- Note:** i) Question paper consists of Part A, Part B.  
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.  
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A****(25 Marks)**

- 1.a) Define formal language. [2]
- b) Write the various text normalization approaches. [3]
- c) Define parsing. [2]
- d) List the ambiguity resolution techniques in parsing. [3]
- e) What are the best approaches for semantic parsing? [2]
- f) What role can linguistic knowledge play in semantic parsing? [3]
- g) What are the different types of arguments that can be associated with a predicate? [2]
- h) How can we automatically extract predicate-argument structures from text? [3]
- i) Define Cohension. [2]
- j) What is the need of N-Gram Models? [3]

**PART – B****(50 Marks)**

- 2.a) How can we automatically detect the hierarchical structure of documents?  
b) What are the challenges of identifying structure in multi-modal documents? [5+5]
- OR**
- 3.a) How can we handle noisy or unstructured documents with ambiguous layouts?  
b) What are the common patterns of document structure across different genres and domains? [5+5]
- 4.a) What are the applications of syntax analysis in Linguistics and Computational linguistics?  
b) What are the challenges of parsing ambiguous sentences? [5+5]
- OR**
- 5.a) What are the computational tools available for syntax analysis?  
b) What role does linguistic theory play in syntax analysis? [5+5]
- 6.a) How can we improve the accuracy and coverage of semantic parsing models?  
b) What are the practical applications of semantic parsing in real-world scenarios? [5+5]
- OR**
- 7.a) What role does context play in semantic parsing?  
b) What are the ethical considerations in semantic parsing? [5+5]

8.a) What are the different types of predicate-argument structures found in natural languages?

b) How can knowledge of predicate-argument structure be applied in real-world applications? [5+5]

**OR**

9.a) What are the syntactic and semantic constraints on predicate-argument structure?

b) What role does predicate-argument structure play in language comprehension and production? [5+5]

10.a) Explain the types of Language models.

b) What are the limitations of N-Gram models? [5+5]

**OR**

11.a) Explain the language model evaluation metrics.

b) How can discourse processing techniques be used to improve natural language understanding systems in real-world applications? [5+5]

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