

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER M.TECH DEGREE EXAMINATION (Regular), FEBRUARY 2022**COMPUTER SCIENCE AND SYSTEMS ENGINEERING****(2021 Scheme)****Course Code : 21SE105-E****Course Name: NATURAL LANGUAGE PROCESSING****Max. Marks : 60****Duration: 3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Explain why CFG is used to represent natural language in parsing.
2. Describe augmented grammar in syntactic analysis.
3. What is meant by the semantics of a natural language, and how this differs from the pragmatics?
4. Explain the Bayes' rule on conditional probability of an event A given an event B.
5. Explain the role of selectional restriction in semantic interpretation
6. Describe thematic roles used in the semantic analysis with example.
7. How the inference is done in FOPC?
8. Identify and describe the ambiguities in the following sentences.
 - i. Book that flight.

PART B*(Answer one full question from each module, each question carries 6 marks)***MODULE I**

9.
 - a) Define NLP? Discuss various types of Evaluation and Evaluating Language Understanding Systems. (3)
 - b) Evaluating language understanding systems and list out the categories. (3)

OR

10.
 - a) Explain the different levels of language analysis. (4)
 - b) Describe open class words and closed class words with examples (2)

MODULE II

11.
 - a) Define a simple grammar? Explain transformational grammar with example. (3)
 - b) What makes a good grammar? Describe open class words and closed class words with examples (3)

OR

12.
 - a) Explain POS tagging with example. (3)
 - b) Explain lexicon, lexeme and the different types of relations that hold between (3)

lexemes

MODULE III

13. a) Discuss the differences between ATN and RTN (3)
b) Analyze the significance of Word Sense Disambiguation in NLP. Explain any one WSD method (3)

OR

14. a) For the CFGs given:
S → NP VP
VP → V NP
NP → Det N
Draw the shift, reduce parser in processing the sentence (3)
The woman saw a puppy
Use the following lexical entries to create the chart parser.
The | a: Det
woman | puppy : N
saw : V
b) Describe the usage of a deterministic parser in NLP. (3)

MODULE IV

15. Analyze how semantics and logical form can be used in natural language processing (6)

OR

16. What are the principles that predict when garden paths will arise in syntactic interpretations of sentences? (6)

MODULE V

17. a) What is meant by knowledge representation? (2)
b) Describe discourse segments. (4)

OR

18. a) Briefly describe what is meant by reference resolution. (3)
b) Define the following with respect to Information Retrieval:
i) Vector Space Model (3)

MODULE VI

19. Draw the transfer architecture for Machine Translation. (6)

OR

20. Justify can statistical techniques be used to perform the task of machine translation? If so, explain in brief. (6)
