



Paper ID : 260685

Printed Page: 1

Subject Code:BOE089

Roll No:

BTECH

(SEM. VIII) THEORY EXAMINATION 2025-26

NATURAL LANGUAGE PROCESSING

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt all questions in brief.

02 x 7 = 14

Q no.	Question	CO	Level
a.	What is Natural Language Understanding? Write its key components.	1	K2
b.	Write any four applications of Natural Language Processing.	1	K2
c.	What do you mean by lexical and syntactic analysis?	1	K2
d.	What are knowledge representations in NLU? Give one example.	1	K2
e.	What is the role of grammar in sentence structure?	1	K2
f.	What are the metrics used for evaluating language understanding systems?	1	K2
g.	Discuss the role of semantic analysis in language understanding.	1	K2

SECTION B

2. Attempt any three of the following:

07 x 3 = 21

Q no.	Question	CO	Level
a.	Discuss about the various approaches to knowledge representation in AI. Write their advantages and limitations.	2	K2
b.	Discuss the role of semantic analysis in machine translation. How does semantic ambiguity affect translation quality? Explain with example.	2	K2,K3
c.	Discuss about the syntax and semantics in NLP. Why is semantic understanding essential beyond syntactic parsing?	2	K2,K3
d.	Explain how knowledge representation techniques are used in database interfaces.	2	K2
e.	Discuss the challenges in semantic interpretation and knowledge representation in NLP systems.	2	K2

SECTION C

3. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Discuss and Compare Top-Down and Bottom-Up parsing techniques. Explain with an example.	3	K2
b.	Explain the Transition Network Grammars. How do they differ from traditional context-free grammars?	3	K2,K3



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4. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Discuss about the role of morphological analysis and lexicon in Feature Systems and Augmented Grammars.	3	K2
b.	Explain the role of auxiliary verbs and verb phrases in English grammar. How are they represented in natural language grammars?	4	K2,K3

5. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Discuss the movement phenomenon in natural language. How do these transformations affect sentence structure?	4	K2,K3
b.	Discuss the concepts of encoding uncertainty in parsing. Compare probabilistic and deterministic parsing also write their advantages and limitations.	4	K2,K3

6. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Explain the concept of ambiguity in natural language processing. Discuss about the different types of ambiguity.	5	K2
b.	Discuss the fundamentals of probabilistic language processing. How are probabilities estimated in NLP?	5	K2

7. Attempt any one part of the following:

07 x 1 = 07

Q no.	Question	CO	Level
a.	Discuss the process of Part-of-Speech tagging. How are lexical probabilities obtained and used in probabilistic tagging models?	5	K2,K3
b.	Explain Probabilistic Context-Free Grammars (PCFGs). Discuss the role of Best-First Parsing in selecting the most likely parse.	5	K2,K3