PAPER ID-410205

Subject Code: KOE088

Roll No: | | | | | | | | | | | | | |

BTECH

(SEM VIII) THEORY EXAMINATION 2023-24

NATURAL LANGUAGE PROCESSING

TIME: 3 HRS **M.MARKS: 100**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Explain Language Modelling.	02	2
b.	Discuss pragmatic analysis.	02	1
c.	Discuss about the concept of knowledge.	02	2
d.	Briefly describe knowledge representation.	02	1
e.	Explain Stochastic Part-of-Speech tagging	02	3
f.	What is the concept of Parsing?	02	3
g.	Explain Frequency and Amplitude	02	4
h.	Discuss Auxiliary verb with suitable example.	02	4
i.	Define Dependency tags with example	02	5
j.	Explain TF and IDF	02	5

SECTION B

2. Attempt any *three* of the following: **3 x 10 = 30**

a.	What is the Concept of Evaluating Language Understanding Systems?	10	1
b.	How the knowledge is represented using Semantic Networks and Production Rules? State with example.		2
c.	Describe Feature Systems and Augmented Grammar under Grammars and Parsing.	10	3
d.	Discuss the process of handling questions in context free grammar. Explain with suitable example.	10	4
e.	Explain Viterbi Search Algorithm with an example.	10	5

SECTION C

3. Attempt any *one* part of the following: **1 x 10 = 10**

a.	Discuss in brief about the concept of Probabilistic Context-Free Grammars.	10	1
b.	Explain the different steps in natural language understanding in detail.	10	1

4. Attempt any *one* part of the following: **1 x 10 = 10**

a.	Discuss about the following: I. Transition Network Grammars. II. Top- Down Chart Parsing.	10	2
b.	Discuss different types of knowledge.	10	2

5. Attempt any *one* part of the following: **1 x 10 = 10**

a.	State Dependency parsing. Explain the working of Shift-reduce parsing in Dependency parsing.	10	3
b.	Discuss Transition Network Grammars and Recursive Transition Networks. Also draw the Transition Network for the following grammar: **NP→ART NP1, NP→DET NP1, NP1→ADJ NP1, NP1→N**	10	3

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6. Attempt any *one* part of the following: 1 x 10 = 10

a.	State Encoding Uncertainty. For the given grammar draw the State Transition diagram using Shift Reduce Parsing. **S→NP VP, NP→ART N, VP→AUX V NP, VP→V NP**	10	4
b.	Discuss about the database interface under the Natural Language Understanding.	10	4

7. Attempt any *one* part of the following: 1 x 10 = 10

a.	Discuss the concept of probabilistic context free grammar in detail	10	5
b.	Explain hidden Markov model with Baum-Welch parameter re-estimation. Alsoelaborate on its implementation issues.	10	5