



Program: CE(Major)

End Semester Examination: B.Tech.

Semester VI

Course Code: CEMDC602

Course Name: Natural Language Processing

Time: 2-hour

Max. Marks: 60

Instructions: 1. All three questions are compulsory

Que. No.	Question	Max. Marks	CO	BT
Q1	Solve any Four			
i)	Illustrate Natural Language Understanding and Natural Language Generation with an example.	5	CO1	BT4
ii)	How do you analyze the need to do a Morphological Analysis?	5	CO2	BT5
iii)	Differentiate between open and closed word classes in English Language.	5	CO3	BT4
iv)	What is meant by semantics of a natural language, and how this differs from the pragmatics?	5	CO4	BT3
v)	Describe reference resolution with a suitable example.	5	CO5	BT2
vi)	How NLP techniques can be applied for "Text Summarization" application?	5	CO6	BT3

Que. No.	Question	Max. Marks	CO	BT
Q2 A	Solve any Two			
i)	What is Natural Language Processing? Discuss Various stages involved in NLP process with suitable example.	5	CO1	BT3
ii)	Apply Porter Stemmer Algorithm on following words to get the stems: i) Tapping ii) Computerization	5	CO2	BT5
iii)	Examine Rule-based and stochastic based part of speech taggers.	5	CO3	BT5
iv)	Illustrate with example the working of "English to Hindi Machine Translator"	5	CO6	BT5
Q2 B	Solve any One			
i)	Use the bigram model and find which of the following sentence is having higher probability. <s>The Book is in the car</s> <s>The car is in a park</s> Consider following Training corpus:	10	CO2	BT5

05 JUN 2024



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	<s>Book a car</s> <s>Park the car</s> <s>The Book is in the car</s> <s>The car is in a park</s>			
ii)	Explain with suitable example the following relationship between word meaning: Hyponymy, Hypernymy, Meronymy and Holonymy.	10	CO4	BT3

Que. No.	Question	Max. Marks	CO	BT
Q3	Solve any Two			
i)				
i)	Explain the concept of reference resolution and its role in maintaining coherence in discourse.	10	CO5	BT3
ii)	Discuss Dictionary-based approach (Lesk algorithm) for word sense disambiguation with suitable example.	10	CO4	BT4
iii)	Consider the following corpus. <s> the/DT students/NN pass/V the/DT test/NN</s> <s>the/DT students/NN wait/V for/P the/DT result/NN</s> <s> teachers/NN test/V students/NN </s> Compute emission and transition probabilities for a bigram Hidden Markov Model. "The students wait for the test"	10	CO2	BT6

Course Outcomes (CO) -Learner will be able to:

CO1: Understand the capabilities and limitations of natural language processing.

CO2: Model linguistic phenomena with formal grammar.

CO3: Design and implement algorithms for syntax analysis.

CO4: Use the mathematical and linguistic foundations for semantic analysis.

CO5: Identify and resolve references between sentences from the discourse.

CO6: Apply NLP techniques to design real world NLP applications.

BT1- Remembering, BT2- Understanding, BT3- Applying, BT4- Analyzing, BT5- Evaluating, BT6- Creating