Faculty of Engineering
End Semester Examination May 2025
IT3EA06 Natural Language Processing

Programme	:	B.Tech.	Branch/Specialisation	:	IT
Duration	:	3 hours	Maximum Marks	:	60

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

	Section 1 (Answer all question(s))	**Marks**	**CO**	**BL**

Q1. Which language can be called as ambiguous language? — **1 1 1**
- ◉ Natural language
- ○ Formal language
- ○ Programming language
- ○ Scripting language

Q2. What is the main challenges of NLP? — **1 1 1**
- ○ Handling ambiguity of sentences
- ○ Handling tokenization
- ○ Handling POS-tagging
- ◉ All of these

Q3. What is morphological segmentation? — **1 2 1**
- ○ Does discourse analysis
- ◉ Separate words into individual morphemes and identify the class of the morphemes
- ○ Is an extension of propositional logic
- ○ None of these

Q4. In derivational morphology we have suffixes like- — **1 2 1**
- ○ Able
- ○ Ness
- ○ Ship
- ◉ All of these

Q5. A sound becomes less similar to its neighboring sounds is the- — **1 3 1**
- ○ Assimilation rule
- ○ Production rule
- ◉ Dissimilation rule
- ○ All of these

Q6. What kind of signal is used in speech recognition? — **1 3 1**
- ○ Electromagnetic signal
- ○ Electric signal
- ◉ Acoustic signal
- ○ Radar

Q7. How many bi-grams can be generated from the given sentence: India is best known for its culture? — **1 4 1**
- ○ 7
- ◉ 6
- ○ 8
- ○ 9

Q8. Groups of words may behave as a single unit is known as- — **1 4 1**
- ○ Syntax
- ○ Semantic
- ◉ Constituent
- ○ Non-constituent

Q9. Categorization of news articles into defined topics is an example of- — **1 5 1**
- ◉ Text classification
- ○ Question answering system
- ○ Machine translation
- ○ Sentiment analysis

Q10. Generative pre-trained transformer is an example of- — **1 5 1**
- ○ Humanoid
- ◉ QA system
- ○ Machine translation
- ○ None of these

Section 2 (Answer all question(s))

Q11. Write the concept of ambiguity in NLP.   2   1   2

Rubric	Marks
Ambiguity in NLP.	2

Q12. Explain the various models used in NLP.   3   1   2

Rubric	Marks
Models used in NLP maximum 4-5.	3

Q13. (a) Define Natural Language Processing (NLP) & its significance. Also highlight the role of NLP in enabling machines to perform various tasks.   5   1   2

Rubric	Marks
Natural Language Processing (NLP) & its significance-2, The role of NLP in enabling Machine to perform various tasks-3	5

(OR)

(b) Define briefly the N-gram model with suitable examples of each model. Also highlight the uses of N-gram Model.

Rubric	Marks
Define Briefly the N-gram Model & examples of each model.-3, Uses of N-gram Model.-2	5

Section 3 (Answer all question(s))

Q14. Define text pre-processing along with an explanation of some common techniques used for text pre-processing.   3   2   2

Rubric	Marks
Define Text Pre-Processing.-1, explanation of some common techniques used for Text Pre-Processing.-2	3

Q15. (a) Give the comprehensive definition of morphological parsing & applications of morphological parsing in NLP. Also write the functions of the morphological parser.   7   2   1

Rubric	Marks
Comprehensive definition of Morphological Parsing & Applications of Morphological Parsing in NLP-4, Functions of Morphological Parser-3	7

(OR)

(b) What do you mean by parts of speech tagging in NLP? Briefly define the three types of tagging with suitable examples and also the workflow of POS tagging.

Rubric	Marks
What do you mean by Parts of speech tagging.-1,Three Types of Tagging With suitable example-3, workflow of POS Tagging-3	7

Section 4 (Answer all question(s))

Q16. What is minimum edit distance? What are the operations performed in edit distance?   **3   3   1**

Rubric	Marks
What is minimum edit distance-1, Operations performed in Edit Distance-2	3

Q17. (a) What do you understand by phonetics? Briefly explain articulatory phonetics, acoustic phonetics, and auditory phonetics.   **7   3   2**

Rubric	Marks
What do you understand by phonetics? -1. Explain what articulatory phonetics, acoustic phonetics, and auditory phonetics are.-6	7

(OR)

(b) Briefly explain probabilistic models. Also, write the types of probabilistic models & the importance of probabilistic models in NLP.

Rubric	Marks
What do you mean by Probabilistic Models.-1, Write the types of Probabilistic Models & Importance of Probabilistic Models in NLP-6	7

Section 5 (Answer all question(s))   **Marks CO BL**

Q18. Define perplexity & its importance in NLP.   **4   4   1**

Rubric	Marks
What is Perplexity in NLP-1, Importance of Perplexity in NLP-3	4

Q19. (a) Define smoothing & its importance in NLP. Write some advantages & disadvantages of smoothing.   **6   4   1**

Rubric	Marks
Smoothing & its importance in NLP.-2 Advantages & Disadvantages of Smoothing-4	6

(OR)

(b) Define backoff & its importance in NLP. Also write some advantages & disadvantages of the backoff technique.

Rubric	Marks
Define Backoff & its importance in NLP-2, Advantages & Disadvantages of Backoff Technique-4	6

Section 6 (Answer any 2 question(s))   **Marks CO BL**

Q20. Explain sentiment analysis. Highlight some challenges & the importance of sentiment analysis in NLP.   **5   5   2**

Rubric	Marks
Explain Sentiment Analysis-1, challenges & Importance of Sentiment Analysis-4	5

Q21. What is machine translation? Write key methodologies used in machine translation.   **5   5   2**

Rubric	Marks
What is Machine Translation-1, Write Key Methodologies Used in Machine Translation.-4	5

Q22. What is text classification? Briefly elaborate on the types & applications of text classification in NLP.   **5   5   1**

Rubric	Marks
What is Text Classification-1,Elaborate the **Types & Applications** of Text Classification in NLP-4	5

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