Register Number												

SRM Institute of Science and Technology
College of Engineering and Technology
School of Computing
SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu
Academic Year: 2024 - 25 EVEN
B. Tech-School of Computing

Test: FT2 **Date: 21.2.2025**

Course Code & Title: 21CSE356T – Natural Language Processing **Duration: 2 periods**

Sem: VI Sem **Max. Marks: 50**

Batch II **SET : C**

Course Articulation Matrix:

S.No.	Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
1	**CO1**	3	3	2										2		
2	**CO2**	3	3	2										2		
3	**CO3**	3	3	2										2		
4	**CO4**	3			3	3								2		
5	**CO5**			2	3	3										

	Part – A **Answer all questions (10 x 1=10 marks)**						
Q. No	**Question**	**Answers**	**Marks**	**BL**	**CO**	**PO**	**PI Code**
1.	What is the goal of natural language Processing? a. To understand the human language and enable computers to interact b. To create new languages for computers to communicate with each other c. To develop machines that can understand and speak all languages in the world d. To replace human communication with the machine communication		1	2	CO1	1	2.6.1
2.	Which of the following is the example of Natural Language Processing a. Translating a document from English to Spanish b. Extracting insights from customer reviews c. Analyzing data in spreadsheet d. Playing a game of chess		1	2	CO1	1	2.6.2
3.	What is the difference between natural language processing and machine learning? a. Natural language processing is a type of machine learning b. Machine language is a type of Natural Language Processing c. Natural Language Processing is focused on language-specific tasks, while machine learning is more general d. There is no difference between natural language processing and machine learning		**1**	2	CO1	1	2.6.1

4.	Which of the following is an example of natural language generation? a. Converting speech to text b. Translating a document from English to French c. Writing a new article d. Analyzing Social media posts		1	2	CO1	1	2.6.1
5.	What is the difference between syntax and semantics in Natural Language Processing? a. Syntax refers to the meaning of Language, while semantics refers to the structure b. Syntax refers to the structure of language, while semantics refers to the meaning c. Syntax and semantics are the same thing. d. Syntax and Semantics are relevant to the Natural language Processing		1	2	CO1	1	2.6.2
6.	What is the purpose of stemming in Natural Language Processing? a. To convert words to their base or root form b. To identify the parts of speech in a sentence c. To group similar words based on their meaning d. To remove stop words from a sentence		1	2	CO1	3	2.6.1
7.	Which of the following is an example of a natural language processing task? a. Creating a website layout b. Designing a logo c. Identifying named entities in a Text d. Generating a musical composition		1	2	CO1	1	2.6.1
8.	Which of the following is the rule-based approach to natural language processing? a. Using Machine learning algorithm b. Creating a set of if-then rules to analyze text c. Using Neural networks to Translate text d. Analyzing text using genetic algorithm		1	2	CO1	1	2.6.1
9.	Which of the following is an example of a language model in Natural language Processing a. A program that identifies named entities in text b. A program that translates text from one language to the other c. A program that generates human-like text based on input d. A program that summarizes the main points of a text		1	2	CO1	1	2.6.1
10.	What is the purpose of Parts of speech Tagging in Natural Language Processing? a. To identify the subject and the object of the sentence b. To determine the overall sentiment of a text. c. To assign a grammatical category to each word in a sentence d. To translate text from language to another		1	2	CO1	1	3.6.2

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4	**CO4**	3			3	3								2		
5	**CO5**			2	3	3										

Part –B

Answer ALL questions (4 x 5=20 marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
11.a.	Explain Lemmatization and types in detail.	5	4	CO1	1	3.6.2
	(OR)					
11.b.	Explain Parts of speech tagging with an example	5	4	CO1	1	3.6.2
12.a.	Perform parsing using simple top-down parsing for the sentence “the dog cried” using the grammar given below	5	3	CO1	3	3.6.1
	(OR)					
12.b.	Explain any 2 feature extraction methods with an example	5	4	CO1	3	3.6.2
13.a.	Difference between NLG and NLU?	5	4	CO1	1	3.6.4
	(OR)					
13.b.	What is the sparsity problem in the N-Gram model?	5	4	CO1	3	3.6.2
14.a.	Difference between Top down and Bottom up parsing?	5	4	CO1	1	3.6.2

	(OR)					
14.b.	Explain the in detail about rules for English grammar with example.	5	3	CO1	3	3.6.2

Part –C

Answer 2 questions (2 x 10=20 marks)

Q. No	Question	Marks	BL	CO	PO	PI Code
15.a.	Explain the different Phases of Natural Language Processing.	10	5	CO1	1	3.6.2
	(OR)					
15.b.	Refer the below table for the Bigram probabilities for eight words in the *Berkeley Restaurant Project corpus* of 9332 sentences. Zero probabilities are in gray. **i** 0.002 0.33 0 0.0036 0 **want** 0.0022 0 0.66 0.0011 0.0065 **to** 0.00083 0 0.0017 0.28 0.00083 **eat** 0 0 0.0027 0 0.021 **chinese** 0.0063 0 0 0 0 Calculate the probability of the sentence '***I want English food***'. Assume the probabilities P(i|<s>) = 0.25, P(english|want) = 0.0011, P(food|english) = 0.5 and P(</s>|food) = 0.68. and include both start and end symbols for calculations.	10	5	CO1	5	3.6.2
16.a.	Explain CKY parsing and probabilistic CFN parsing.	10	5	CO1	1	3.6.2
	(OR)					
16.b.	Define dependency parsing? Construct parse tree for the sentence "**Universities offer better placement opportunities for students**." Using dependency method. Mention some real-world application and justify	10	5	CO1	3	3.6.2