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GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Seventh Semester – Regular) Examinations, November – 2023

BPECS7014 – Natural Language Processing

(CSE)

Time: 3 hrs

Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)

(1 x 10 = 10 Marks)

Q.1. Answer ALL questions

[CO#] [PO#]

- | | | |
|---|-----|-----|
| a. Choose form the following areas where NLP can be useful. | CO1 | PO1 |
| (i) Automatic Text Summarization | | |
| (ii) Automatic Question-Answering Systems | | |
| (iii) Information Retrieval | | |
| (iv) All of the mentioned | | |
| b. Nouns, Verbs, Adjectives, Adverbs belong to ____ class type in POS | CO2 | PO1 |
| (i) Join Class | | |
| (ii) Open Class | | |
| (iii) Sub Class | | |
| (iv) Closed class | | |
| c. How many bi-grams can be generated from given sentence:- "This is NLP book."? | CO3 | PO1 |
| (i) 3 | | |
| (ii) 2 | | |
| (iii) 4 | | |
| (iv) 1 | | |
| d. In linguistic morphology, _____ is the process for reducing inflected words to their root form. | CO2 | PO1 |
| (i) Stemming | | |
| (ii) Rooting | | |
| (iii) Text-Proofing | | |
| (iv) Both a & b | | |
| e. In the sentence, "They bought a blue house", the underlined part is an example of ____. | CO2 | PO1 |
| (i) Noun phrase | | |
| (ii) Verb phrase | | |
| (iii) Prepositional phrase | | |
| (iv) Adverbial phrase | | |
| f. -----is the study of internal structure of word. | CO2 | PO1 |
| (i) Morphological Processing | | |
| (ii) Syntax Processing | | |
| (iii) Parser | | |
| (iv) Semantic Processing | | |
| g. ____ concerns how the immediately preceding sentences affect the interpretation of the next sentence | CO3 | PO1 |
| (i) Pragmatics | | |
| (ii) Syntax | | |
| (iii) Discourse | | |
| (iv) Semantics | | |
| h. What type of ambiguity exists in the word sequence "Time flies"? | CO2 | PO1 |
| (i) Syntactic | | |
| (ii) Semantic | | |
| (iii) Phonological | | |
| (iv) Anaphoric | | |
| i. Which one of the following is type of spelling errors? | CO4 | PO1 |
| (i) Sentence errors | | |
| (ii) Non-word errors | | |
| (iii) Non-cognitive errors | | |
| (iv) Syntax errors | | |
| j. What is the field of Natural Language Processing (NLP)? | CO1 | PO1 |
| (i) Computer Science | | |
| (ii) Artificial Intelligence | | |
| (iii) Linguistics | | |
| (iv) All of the mentioned | | |

PART – B: (Short Answer Questions)**(2 x 10 = 20 Marks)**Q.2. Answer ALL questions

	[CO#]	[PO#]
a. List some applications of NLP.	CO1	PO1
b. What do you mean by word sense disambiguation?	CO4	PO1
c. What do you mean by homonymy?	CO2	PO1
d. How does caching improves the n-gram model?	CO3	PO2
e. Differentiate between coherence and cohesion in Discourse.	CO2	PO1
f. What do you mean by stemming?	CO2	PO1
g. Differentiate between open class and closed class of words	CO2	PO2
h. What is meant by Lexicon? How is it useful in NLP?	CO2	PO1
i. List some common components of NLP.	CO1	PO1
j. Differentiate between word order and word sense	CO3	PO1

PART – C: (Long Answer Questions)**(10 x 4 = 40 Marks)**Answer ALL questions

	Marks	[CO#]	[PO#]
3. a. What are the problems associated with N-Gram model? How are these problems handled?	5	CO2	PO1
b. Give the representation of a sentence in d-structure and s-structure in GB.	5	CO2	PO1
(OR)			
c. Make a list of the challenges faced by NLP.	5	CO1	PO1
d. Write a note on the following:	5	CO2	PO2
a. \bar{X} theory b. Theta Theory			
4. a. Explain the Paninian grammar and it's working culture.	5	CO3	PO3
S -> NP VP			
VP -> V {NP} {NP} PP* {S'}			
PP -> P NP			
NP -> Det N {PP}			
S' -> Comp S			
b. Compute the minimum edit distance between paecflu and peaceful	5	CO2	PO1
(OR)			
c. Define a finite automaton that accepts the following language	5	CO2	PO2
(aa)*(bb)*			
d. What is morphological Parsing? Explain 2 level morphological model with an example.	5	CO2	PO2
5. a. Explain different categories of spelling error.	5	CO3	PO1
b. Discuss the disadvantages of the basic top-down parser with the help of an appropriate example	5	CO2	PO2
(OR)			
c. How top-down parsing is different from bottom-up parsing?	5	CO3	PO1
d. Explain Lexical Functional Grammar with some examples.	5	CO2	PO1
6. a. What are the advantages and disadvantages of using semantic grammars?	5	CO2	PO1
b. Write short notes on	5	CO3	PO2
(i) Machine translation (ii) Text summarisation			
(OR)			
c. What is meant by the semantics of a natural language, and how this differs from the pragmatics?	5	CO3	PO1
d. Analyse the naive Bayes classifier approach to Word Sense Disambiguation in NLP.	5	CO3	PO1

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