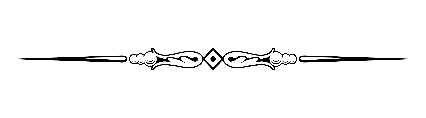
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Hall Ticket Number: 20CS702 / 20CB702 / 20DS702 /PE**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | | **IV/IV B.Tech (Regular)DEGREE EXAMINATION** | | | | **January, 2024** | **Common to CSE,CB &DS** | | | **Seventh Semester** | **Natural Language Processing** | | | **Time: Three Hours** | | **Maximum:70 Marks** | |  |
| |  |  | | --- | --- | | ***Answer question 1 compulsory.*** | **(14X1 = 14 Marks)** | | ***Answer one question from each unit.*** | **(4X14=56 Marks)** | |  |  | |  |

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|  |  | |  | **CO** | **BL** | **M** |
| 1 | a) | | Distinguish between unstructured and structured data? | CO1 | L4 | 1M |
|  | b) | | What are the advantages of building an NLP based expert system using Python? | CO1 | L1 | 1M |
|  | c) | | What are the variants of corpora supported by NLTK? | CO1 | L1 | 1M |
|  | d) | | What are the challenges in creating a corpus for NLP applications? | CO1 | L1 | 1M |
|  | e) | | Differentiate between NLU and NLG. | CO2 | L4 | 1M |
|  | f) | | Identify different morphemes in the word “unhappiness”. | CO2 | L3 | 1M |
|  | g) | | Identify the ambiguity in “Time flies like an arrow”. | CO2 | L3 | 1M |
|  | h) | | What are the basic steps involves in Preprocessing Pipeline.. | CO3 | L1 | 1M |
|  | i) | | Find outcome of Stemming and Lemmatization when applied to the word COMPUTERS | CO3 | L1 | 1M |
|  | j) | | Compare the regex functions re.match( ), re.search( ) and re.findall( ). | CO3 | L4 | 1M |
|  | k) | | What is the purpose of feature engineering? | CO4 | L1 | 1M |
|  | l) | | State the formal definition of Probabilistic Context-Free Grammar. | CO4 | L1 | 1M |
|  | m) | | What is Dependency Parsing? | CO4 | L1 | 1M |
|  | n) | | Compare and Contrast n-grams and bag of words. | CO4 | L4 | 1M |
|  | | **Unit –I** | | | | |
| 2. | a) | | Discuss in detail about the Development Life Cycle of an NLP based Model | CO1 | L4 | 7M |
|  | b) | | Explain in detail about different types of Data Attributes? | CO1 | L2 | 7M |
|  | | **(OR)** | | | | |
| 3. | a) | | “Python is one of the best options to build an NLP-based expert system” Justify. | CO1 | L5 | 7M | |
|  | b) | | Explain about the basic API attributes needed to access corpus using NLTK API | CO1 | L2 | 7M | |
|  | | **Unit –II** | | | | |
| 4. | a) | | Elaborate Morphological Analysis with examples. | CO2 | L4 | 7M | |
|  | b) | | Discuss in detail about Lexical and Syntactic Analysis with suitable examples | CO2 | L4 | 7M | |
|  | | **(OR)** | | | | |
| 5. | a) | | Analyze Discourse Integration and Pragmatic Analysis with examples. | CO2 | L4 | 7M |
|  | b) | | Write about different types of Ambiguity and ways to handle them. | CO2 | L2 | 7M |
|  | | **P.T.O**  **20CS702 / 20CB702 / 20DS702 /PE**  **Unit –III** | | | | |
| 6. | a) | | What is the need of Preprocessing? Give few case studies of Preprocessing? | CO3 | L2 | 8M |
|  | b) | | Elaborate the role of regular expressions in basic preprocessing of NLP | CO3 | L4 | 6M |
|  | | **(OR)** | | | | |
| 7. | a) | | Illustrate the advanced regular expressions with examples. | CO3 | L3 | 7M |
|  | b) | | Discuss in detail about Word and Sentence Tokenization with Challenges. | CO3 | L4 | 7M |
|  | | **Unit –IV** | | | | |
| 8. | a) | | Construct a top-down, depth-first, left-to-right parse tree for the given sentence:  The angry bear chased the frightened little squirrel  Use the following grammar rules to create the parse tree:   |  |  | | --- | --- | | S → NP VP  NP → Det Nom  VP → V NP  Nom →Adj Nom | N | Det → the  Adj→ little | angry | frightened  N → squirrel | bear  V → chased | | CO4 | L6 | 4M |
|  | b) | | Discuss in detail about the basic features of NLP with examples. | CO4 | L4 | 10M |
|  | | **(OR)** | | | | |
| 9. | a) | | Implement syntactic parsing for a natural language sentence “fish people fish tanks” using Cocke-Kasami-Younger (CKY) algorithm by considering the following PCFG : | CO4 | L3 | 10 M |
|  | b) | | Discuss in detail about the role of TF-IDF in Feature Engineering. | CO4 | L4 | 4M |

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