Unit Wise Question Bank

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| **Department: Computer**  **Class: BE** | **Semester: II**  **Div.: B, C** | **Academic Year: 2022- 2023** |
| **Course: Natural Language Processing** |  |  |

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| **Unit No.** | **Q. No.** | **Question** | **Marks** | **CO** | **Blooms Level** |
| Unit- I | Q.1 | What is NLP? Discuss the different stages in NLP. | 8 | CO1 | Understand |
| Q.2 | State and explain the different challenges in NLP. | 6 | CO1 | Understand |
| Q.3 | Why NLP is hard? | 4 | CO1 | Understand |
| Q.4 | Differentiate between Programming Languages and Natural Languages. | 6 | CO1 | Apply |
| Q.5 | State the difference between stemming and lemmatization. | 6 | CO1 | Remember |
| Q.6 | What are the benefits of tokenization ? what is its importance ? | 5 | CO1 | Understand |
| Q.7 | State and explain the different applications in NLP. | 5 | CO1 | Apply |
| Q.8 | Explain POS tagging. | 5 | CO1 | Understand |
| Q.9 | What are the uses of Lemmatization. | 6 | CO1 | Remember |
| Q.10 | What do you understand by ambiguity? | 4 | CO1 | Understand |
| Q.11 | Write short note on Lemmatization and tokenization | 8 | CO1 | Understand |
| Unit-II | Q.1 | Define morpheme, stem and affixes. | 4 | CO2 | Understand |
| Q.2 | Explain with examples Inflectional morphology & Derivational morphology | 8 | CO2 | Remember |
| Q.3 | Write a note on Morphological parsing with FST. | 6 | CO2 | Understand |
| Q.4 | Write short note on CYK Algorithm. | 6 | CO2 | Understand |
| Q.5 | Explain Dictionary Based Approach. | 6 | CO2 | Understand |
| Q.6 | Define the following terms:  Homonymy, Polysemy, Synonymy, Hyponymy. | 8 | CO2 | Apply |
| Q.7 | Design a finite state transducer with E-insertion orthographic rule that parses  from surface level “foxes” to lexical level “fox+N+PL” using FST. | 6 | CO2 | Understand |
| Q.8 | Identify the head and morphological type (Noun Phrase,Verb Phrase, Adjective  Phrase, Adverbial Phrase) of the following sentence segments.  i. The president of the company  ii. Looked up the chimney  iii. Angry as a hippo  iv. Rapidly like a bat | 4 | CO2 | Understand |
|  | Q. 9 | Write short note on WordNet. | 5 | CO2 | Understand |
|  | Q. 10 | What is role of FSA in morphological analysis? Explain FST in detail. | 10 | CO2 | Understand |
| Unit-III | Q.1 | What are Hidden Markov Models (HMM) ? | 4 | CO3 | Remember |
| Q.2 | What is n-gram Model ? | 8 | CO3 | Understand |
| Q.3 | What is Smoothing ? Why is it required ? | 6 | CO3 | Understand |
| Q.4 | Explain Latent Dirichlet Allocation (LDA). | 6 | CO3 | Apply |
| Q.5 | Write short note on:   1. Contextualized representations (BERT) 2. Word2Vec | 6 | CO3 | Remember |
| Q.6 | What is Tf-idf? | 3 | CO3 | Understand |
| Q.7 | Explain the concept of Bag of Words. | 6 | CO3 | Apply |
| Q.8 | What is inverse document frequency? | 4 | CO3 | Understand |
| Q. 9 | Explain the concept of Non Negative  Matrix Factorization. | 6 | CO3 | Remember |
| Q. 10 | How evaluating the language model? | 6 | CO3 | Understand |
| Unit-IV | Q.1 | Explain the vector space model. | 4 | CO4 | Understand |
| Q.2 | Explain the working of typical IR system. | 6 | CO4 | Remember |
| Q.3 | Write short on Named Entity Recognition. | 8 | CO4 | Understand |
| Q.4 | What is reference resolution? | 5 | CO4 | Understand |
| Q.5 | Explain concept of Coreference resolution. | 5 | CO4 | Understand |
| Q.6 | How evaluating NER system? | 8 | CO4 | Understand |
| Q.7 | Write short note on relation extraction. | 4 | CO4 | Understand |
| Q.8 | Write short note on entity extraction. | 4 | CO4 | Understand |
| Q. 9 | Write short on Cross Lingual Information Retrieval. | 4 | CO4 | Understand |
| Q. 10 | What are the types of IR Model? | 10 | CO4 | Understand |
| Unit-V | Q.1 | Explain Lesk Algorithm. | 6 | CO5 | Understand |
| Q.2 | Explain Walker Algorithm. | 6 | CO5 | Remember |
| Q.3 | Define: PropBank | 4 | CO5 | Understand |
| Q.4 | Define: VerbNets | 4 | CO5 | Understand |
| Q.5 | Write short note on: Treebanks | 4 | CO5 | Understand |
| Q.6 | Explain the concept of WordNets. | 5 | CO5 | Apply |
| Q.7 | Explain concepts of Universal Dependency Treebanks. | 5 | CO5 | Understand |
| Q.8 | Explain concepts of WordNets for Word Sense Disambiguation. | 5 | CO5 | Understand |
| Q. 9 | Write short note on: TextBlob, spaCy. | 5 | CO5 | Understand |
| Q. 10 | What is the purpose of genism library? | 5 | CO5 | Understand |
| Unit-VI | Q.1 | Analyze how statistical methods can be used in machine translation. | 8 | CO6 | Understand |
| Q.2 | Describe the different components of a typical conversational agent. | 8 | CO6 | Remember |
| Q.3 | Explain the discourse processing. | 4 | CO6 | Understand |
| Q.4 | Describe briefly natural language generation. | 5 | CO6 | Understand |
| Q.5 | Explain the Question Answering System. | 5 | CO6 | Understand |
| Q.6 | Write short note on Rule based techniques. | 5 | CO6 | Apply |
| Q.7 | Explain concept of Text Entailment. | 5 | CO6 | Understand |
| Q.8 | Explain sentiment analysis with example. | 5 | CO6 | Understand |
| Q. 9 | What is meant Cross Lingual Translation? | 5 | CO6 | Understand |
| Q. 10 | Explain Statistical Machine Translation (SMT). | 6 | CO6 | Understand |

**Course faculty**