

NLP Important and Super Important Questions

-TIE Review team

1. What is NLP? Describe the challenges and applications of NLP?
2. Describe different levels of NLP? Define rationalist and empiricist approaches to NLP?
3. What is government and binding theory? Explain different levels of representation, components and organization of Government and binding theory with relevant diagrams?
4. Explain theta theory, theta role and theta criterion with examples/
5. Write the features and different smoothing techniques of the n-gram model
6. Write C and F structure of a given sentence "TIE is nice"
7. Write a short note on the Panini Framework and karaka theory of the Indian language model
8. What is Morphological parsing? Explain with a neat diagram and List different resources used by it
9. What do you mean by stemming techniques? Explain
10. Write FST representation to generate an immediate and lexical representation of the word "Exams"
11. Explain (i)Syntactic parsing (ii)Context-free grammar (iii)Language constituents (iv)Probabilistic parsing (with adv)
12. Describe the following with example (i)Coordination (ii)Agreement (iii)Feature structure
13. Explain CYK parsing algorithm, Parse the sentence "The girl is Arya Stark of Winterfell" using the CYK parsing technique
14. Explain top-down parsing and bottom parsing algorithms with examples
15. Explain three major operations of Earley parser to process the chart state, parse the sentence "Paint the door" using Earley parser.
16. Explain the process of information retrieval with a neat diagram?
17. Describe cluster and fuzzy models of information retrieval
18. List and explain non-classical models of Information retrieval
19. Explain tf-idf term weighting approach
(b)Describe cosine and Jaccard similarity measure used for IR
20. (a)List standard document collections used for a variety of NLP related tasks
(b)Explain latent semantic indexing approach used in IR
(c)Find the cosine similarity between two document vectors $a=\{3,2,0,5\}$ and $b=\{1,0,0,0\}$
21. Explain different steps of active learning strategy, Describe the four patterns used to extract relationships between two entities
22. Briefly explain learning framework architecture with a neat diagram
23. With a neat diagram explain a functional overview of InFact system, describe how IQL is used in InFact systems with ex

24. Describe the different stages of the evolutionary model for knowledge discovery from texts with a neat diagram
25. Briefly describe topic models feedback systems and illustrate metacognitive statement
26. Write a note on (i) SVM (ii)Frame semantics theory (iii)Shortest dependency path hypothesis (iv)Computation of relational kernel
27. Define (i)Cohesion (ii)Coh-Matrix (iii)Word matching
28. Explain domain knowledge, domain concepts and knowledge rules
29. Explain document separation as a sequence mapping problem

