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18CS743

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024
Natural Language Processing

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. What is NLP? Explain the challenges of NLP. (08 Marks)
   b. Explain different levels of language processing. (08 Marks)
   c. Differentiate between the rationalist and empiricist approaches to NLP. (04 Marks)

OR

2 a. Explain n-gram model. How to handle data sparseness problem in n-gram model. (10 Marks)
   b. Represent the following sentence in GB (S-structure and d-structure) (06 Marks)
   c. With example, explain the important features of Indian Languages. (04 Marks)

Module-2

3 a. What is Morphology? Explain two step morphological parser. (06 Marks)
   b. Write and explain minimum edit distance algorithm. Compute minimum edit distance between tutor and tumour. (10 Marks)
   c. What is POS (Part of Speech) tagging? List POS tagging methods. (04 Marks)

OR

4 a. Discuss the disadvantages of the logic top-down parser with the help of an appropriate example. (10 Marks)
   b. Write a note on :
      i) CFG (Context-Free Grammar) for natural language
      ii) Lexicalization (10 Marks)

Module-3

5 a. Explain the shortest path hypothisis with example. (10 Marks)
   b. Explain how to capture relation pattern with a string Kernel. (10 Marks)

OR

6 a. With diagram explain learning framework architecture. (10 Marks)
   b. Explain the strategies used in active learning approach. (10 Marks)

Module-4

7 a. Explain with neat diagram evolutionary nodel for KDT (Knowledge Discovery from Text) (10 Marks)
   b. Define :
      i)   Cohesion
      ii) Interestingness
      iii) Coherence
      iv) Coverage
      v)   Plausibility of origin. (10 Marks)

OR

8 a. Explain SVM learning method in sequential model estimation. (10 Marks)
   b. Write a note on various approaches to analyzing texts. (10 Marks)

Module-5

9 a. What are the benefits of eliminating stop words? Give examples in which stop word elimination may be harmful. (06 Marks)
   b. What is IR (information system)? Explain design features of IR with neat diagram. (10 Marks)
   c. State and explain Zipf's law. (04 Marks)

OR

10 Write a short note on :
   i) POS tagger
   ii) WORDNET
   iii) FRAMENET
   iv) STEMMERS (20 Marks)

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