CBCS SCHEME

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.   Explain the issued and processing complexities in NLP.   (05 Marks)
    b.   Explain the components of transformational grammer with an example.   (10 Marks)
    c.   With a diagram, explain the components of Governing and Binding.   (05 Marks)

OR

2   a.   Explain the various levels of processing and the types of knowledge it involves.   (10 Marks)
    b.   Illustrate the bi-gram model by considering the Training Set :
      "The Arabian Knights
      These are the fairy tales of the east
      The stories of the Arabian knights are translated in many languages.
      Test Sentence (s) : The Arabian Knights are the fairy tales of the east.   (10 Marks)

Module-2

3   a.   Write minimum edit distance algorithm and compute minimum edit distance for tutor and tumour.   (07 Marks)
    b.   Explain Earley parsing algorithm.   (07 Marks)
    c.   Explain Rule based Tagger.   (06 Marks)

OR

4   a.   Explain top-down parser and bottom-up parser with a suitable example.   (08 Marks)
    b.   Interpret Regular expressions and Finite State Automata with an example for each.   (08 Marks)
    c.   Explain Cocke-Younger-Kasami (CYK) algorithm.   (04 Marks)

Module-3

5   a.   Explain the shortest path Hypothesis and learning with dependency path in detail.   (10 Marks)
    b.   Explain with neat diagram the learning frame Architecture.   (10 Marks)

OR

6   a.   Explain the following Indexing services
      i)   Document processing
      ii)   Clause processing
      iii)   Linguistic processing   (10 Marks)
    b.   Explain Frame semantics and semantics Role labeling in detail.   (10 Marks)

Module-4

7   a.   Explain the functioning of Word Matching Feedback Systems.   (08 Marks)
    b.   Discuss iSTART system and their modules.   (08 Marks)
    c.   Illustrate Topic Models (TM) Feedback system.   (04 Marks)

OR

8 a. Define:
   i) Cohesion
   ii) Coh- Metrix
   iii) Latent Semantic Analysis.   (10 Marks)
   b. Write a note on various approaches to analyzing texts.   (10 Marks)

Module-5

9 a. Explain basic Information retrieval process with diagram.   (05 Marks)
   b. Discuss the Boolean model with an example in classical information retrieval model.
                                                                      (10 Marks)
   c. Explain the Applications of Wordnet.   (05 Marks)

OR

10 a. Illustrate the relationship between frequency of words and their rank order in Zipf's law.
                                                                      (05 Marks)
   b. Explain the fuzzy model in Alternative models of IR.   (10 Marks)
   c. Explain the Applications of Framenet.   (05 Marks)

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