B.Tech Even Semester Examination, May, 2025

Computer Science & Engineering

(8th Semester)

Course No: CSE-801(5)

(Speech and Natural Language Processing)

Full Marks: 50
Pass Marks: 25
Time: 2 hours

Note:
1. Attempt any five questions.
2. Begin each answer in a new page
3. Answer parts of a question at a place
4. Assume reasonable data wherever required
5. The figure in the right margin indicates full marks for the question
6. All the mathematical symbols and abbreviations have their usual meanings.

1. (a) What is morpheme? How are words produced from morphemes? Explainwith an example. (1+6=7)

   (b) State the difference between homonymy and polysemy and give an example of each. (3)

2. (a) What are feature structures? How are they represented? (4)

   (b) What is over-generation problem? How can we solve the problem of overgeneration problem using feature structure and unification? (2+4)

3. (a) What is POS tagging?. (2)

   (b) Write in brief different approaches of POS tagging. 6

(c) Describe open class words and closed class words with examples. (2)

4. (a) Explain one Top down parsing algorithm with example. (6)

   (b) What are the three classic models in information retrieval system? (4)

5. (a) What are the different types of phrases? Explain with Examples. (5)

   (b) What is smoothing? Explain Laplace smoothing technique. 1+4=5

6. (a) What is WordNet? Explain with examples the relations in WordNet. (1+6=7)

   (b) Give any 3 different evaluation metrics available for text classification? (3)

7. (a) Write a pronoun resolution algorithm. Explain the algorithm with the help ofan example 6

   (b) What are different types of sentence structure? (4)

8. Write short notes on (5+5=10)

   (i) Application of NLP (ii) Vector Space Model

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