

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCA DEGREE EXAMINATION DECEMBER 2024
(Fifth Semester)

Branch – COMPUTER APPLICATIONS

MAJOR ELECTIVE COURSE – I NATURAL LANGUAGE PROCESSING

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 What is the main challenge/s of NLP?
a) Handling Ambiguity of Sentences b) Handling Tokenization
c) Handling POS-Tagging d) Sentiment analysis
- 2 _____ is the step in which an input sentence is converted into a hierarchical structure that corresponds to the units of meaning in the sentence.
a) Syntactic Processing b) Semantic Processing
c) Graph Processing d) data Processing
- 3 What is the purpose of stemming in natural language processing?
a) To convert words to their base or root form
b) To identify the parts of speech in a sentence
c) To group similar words together based on their meaning
d) To remove stop words from a sentence
- 4 Which of the following is an example of a natural language processing task?
a) Creating a website layout b) Designing a logo
c) Identifying named entities in a text d) Generating a musical composition
- 5 Which of the following is an example of a language model that uses a probabilistic approach?
a) Hidden Markov model (HMM) b) Rule-based model
c) Decision tree d) Convolutional neural network (CNN)

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a) Explain the origins of natural language processing.
OR
b) Elaborate the statistical language model for information retrieval.
- 7 a) Summarize the process of unsmoothed N-grams.
OR
b) Illustrate the need of part-of-speech tagging.
- 8 a) Explain the concept of context free grammars.
OR
b) Outline the importance of dependency grammar with example.
- 9 a) State and explain the thematic roles in word senses.
OR
b) Discuss the dictionary and thesaurus methods in WSD implementation.

Cont...

- 10 a) Illustrate the process of discourse segmentation.
OR
b) Explain the components of WordNet in NLP.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 6 = 30)

- 11 a) Analyze the regular expressions in Natural Language Processing.
OR
b) Enumerate about the transducers for lexicon and rules.
- 12 a) Compare and construct the stochastic and transformation based tagging.
OR
b) Discuss the hidden Markov and maximum entropy models.
- 13 a) Interpret the functions of syntactic parsing and ambiguity.
OR
b) Elucidate the need of probabilistic lexicalized CFGs.
- 14 a) Illustrate the importance of syntax driven semantic analysis.
OR
b) Explain the Supervised methods for Word Sense Disambiguation (WSD).
- 15 a) Examine the anaphora resolution using Hobbs and centering algorithm.
OR
b) Distinguish between the Penn Treebank and Brill's Tagger.

Z-Z-Z

END