[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2125)

15272

B. Tech 7th Semester Examination

Natural Language Processor (OS)

CS-7004

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all selecting one question each from section A, B, C, and D. Section E is compulsory. Use of non-programmable calculators is allowed.

SECTION - A

1. Describe a correlation between prosody and the syntactic structure of the language. (20)

2. Consider the following words: editor, tiger, singer, bigger.

   (i) Which two have the same morphological structure?

   (ii) Which one has a different suffix from the others?

   (iii) Which one consists of only one morpheme?

   (iv) For each word, draw finite state model giving its morphological structure. (20)

SECTION - B

3. Differentiate between context free and context sensitive language. Write an algorithm for converting an arbitrary context free grammar into Chomsky normal form. Explain it with a suitable example. (20)

[P.T.O.]

4. Differentiate between left associative grammar and ambiguous grammar. Use the following example of the grammar to substantiate your answer.

   $A \rightarrow A + A \mid A - A \mid a$ (20)

SECTION - C

5. Generate various possible parsing of the following sentence

   Every man likes a woman.

   Analyse the inherent ambiguity in the sentence. (20)

6. Describe ATN and RTN for the following grammar.

   $S \rightarrow NP\ VP$,

   $NP \rightarrow DET\ N$, and

   $VP \rightarrow V\ NP$. (20)

SECTION - D

7. Extract the semantic scope ambiguity:

   Every student worked on a project.

   It was about natural language processing.

   Every politician made a speech.

   It was about Pakistan. (20)

8. Explain the role of NLP in tutoring and authoring systems. (20)

SECTION - E

9. Write short notes on the following:

   (a) Lexicography.

   (b) Speech recognition.

   (c) Machine translation.

   (d) Opinion mining.

   (e) Formal languages. (4×5=20)