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**B. E. (Seventh Semester) Examination,
April-May 2020**

(Old Scheme)

(CSE, IT Engg. Branch)

NATURAL LANGUAGES PROCESSING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Solve any two part from each question. Each question carries equal marks.

Unit-I

- 1. (a) What do you mean by grammar? What is context free grammar. Briefly explain the context free rules. 8
- (b) Write an algorithm for converting an arbitrary context free grammar into chomsky normal form. 8

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- (c) Define passing. What is left recursion? Write an algorithm to eliminate left recursion. 8

Unit-II

- 2. (a) Give a FOPC translations for the following sentences : 8
 - (i) Vegetarians do not eat meat
 - (ii) Not all vegeterians eaty eggs
- (b) Give a set of facts and interences necessary to prove the following assertions : 8
 - (i) McDonalds is not a vegetarian restaurant
 - (ii) Some vegetarions can eat at Mc Donalds
- (c) Develope a set of grammer rules and semantic attachments to handle predicate adjectives for the following : 8
 - (i) Flight 308 from New York is expensive
 - (ii) Murphy’s restaurant is cheap

Unit-III

- 3. (a) Write an algorithm for pronoun resolution with a suitable example. 8

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- (b) Write a finite-state automation for a dialogue manager for checking your bank account balance and with drawing money at an automated teller machine. 8
- (c) The sentence “Do you have the ability to pass the salt” is only interpretable as a question, not as an indirect request. Why is this a problem for the BDI model. 8

Unit-IV

- 4. (a) What do you mean by natural language? Give the architecture for NLG with a suitable block diagram. 8
- (b) What is functional unification grammar explain briefly with an suitable example? 8
- (c) What is RST? How does RST compare with Gross and Sinder’s theory of discourse. Why do you think that RST has had a greater influence on NLG justify? 8

Unit-V

- 5. (a) Explain the following terms briefly : 8
 - (i) Syntactic transformation
 - (ii) Lexical transfer

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- (b) What is direct translation? Design a direct machine translation system for conversion from one language to another language with a suitable example. 8
- (c) What are different statistical techniques for machine translation. Explain them briefly with suitable examples. 8