Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**MCA - SEMESTER–V EXAMINATION – WINTER - 2017**

**Subject Code:2650014 Date:30/11/2017**

**Subject Name: Language Processing (LP)**

**Time:10:30 AM TO 01:00 PM Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

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|---|---|---|---|
| **Q.1** | **(a)** | What is natural language processing (NLP)? Explain applications of NLP in brief. | **07** |
| | **(b)** | Explain Syntax, Semantics & Pragmatics. | **07** |
| **Q.2** | **(a)** | What is ambiguity in language processing? Discuss how to resolve the ambiguity. | **07** |
| | **(b)** | Natural Language Understanding requires a capability to represent and reason about knowledge of the word? Justify? | **07** |
| | | **OR** | |
| | **(b)** | Describe fore-tracking parser & Backtracking Parser? | **07** |
| **Q.3** | **(a)** | How the natural language processing systems are evaluated? Explain. | **07** |
| | **(b)** | Draw the DFA for the following:<br>1. Strings which starts with ‘a*’ or ‘b*’ and ends with ‘abb’<br>2. String with same no. of occurrences of letter ‘a’, followed by letter ‘b’ and followed by ‘c’. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Write an algorithm for converting an arbitrary context- free grammar into Chomsky normal form. Explain it with a suitable example. | **07** |
| | **(b)** | Draw FSA to recognize sheep talks. | **07** |
| **Q.4** | **(a)** | Describe the following with suitable example:<br>(a) Probabilistic Models<br>(b) N-Grams | **07** |
| | **(b)** | Explain various Context-Free Rules & Trees and also Explain about Sentence-Level Constructions. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Describe the following with suitable example:<br>(a) English Word Classes<br>(b) POS Tagging | **07** |
| | **(b)** | Explain 1) Sentence-Level Construction, 2) Agreement in context-free grammar. | **07** |
| **Q.5** | **(a)** | What is feature structure? Explain unification feature structure with example | **07** |
| | **(b)** | Define the term representing meaning (RM). Explain categories, event, representing time linguistically relevant concept in RM. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Explain the concept of verifiability, unambiguous Representation, canoninical form and Inference in RM. | **07** |
| | **(b)** | Explain First-order predicate calculus (FOPC) in detail. | **07** |

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