International Institute of Information Technology, Hyderabad

Subject: **CL2.4 Computational Linguistics II**

Mid Semester Examination

Max. Time: 1.5 Hr **Max. Marks: 20**

This question paper contains TWO sections.

Section-A **Short Questions** **(5 * 3 = 15)**

Answer any THREE questions. 8:38

1. Consider a domain where the word coffee can refer to the following concepts: *a caffeinated or decaffeinated beverage, ground coffee used to make either kind of beverage, and the beans themselves.* Give arguments as to which of the following uses of coffee are ambiguous and which are vague.

   a. I've had my coffee for today.
   b. Buy some coffee on your way home.
   c. Please grind some more coffee.

2. Explain the following word-sense dismabiguation models .
   (i) Linguistic Feature-based Algorithms (ii) Lesk Algorithm

3. How are selectional restrictions represented in semantic type constraints, and how can considering these constraints enhance the accuracy and depth of any semantic analysis?

4. Elaborate on an algorithm used in sentiment analysis for analyzing the polarity of a given sentence. Discuss its components, steps, and how it determines sentiment orientation (positive, negative, or neutral) from text.

5. Explain the following concepts in relation to any semantic analysis.

   a. a. Word2Vec b. Stochaistic Gradient Descent

Section-B **(5 marks)**

Annotate the following data using FOPC (First-Order-Predicate-Calculus) / FrameNet/ Propbank Guidelines.

The alarm rang loudly. It signals the start of a new day. Sita got out of bed and began her morning routine. The children were playing on the swings and slides. The rain started to pour down heavily. Children hurriedly rushed to find shelter.