COURSE CODE: 18B1WCI183   MAX. MARKS: 25

COURSE NAME: Natural Language processing

COURSE CREDITS: 3   MAX. TIME: 1.5 Hr

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Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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Q1) The following shows a simple context free grammar (CFG) for a fragment of English:

[2+2+2 marks]

S -> NP VP	NP -> Sandy
VP -> V NP	Det -> a
VP -> V NP N	N -> puppy
VP -> V NP PP	N -> garden
VP -> VP PP	V -> walks
NP -> Det N	V -> gives
PP -> P NP	P -> to
NP -> Kim	P -> in

(a) Give all analyses (parse trees) this grammar assigns to the following sentences:

    Kim gives a puppy to Sandy.

    Kim walks a puppy in a garden.

Which of the analyses is correct?

2) Give brief definitions of the following terms.   [3 marks]

Illustrate the definitions with examples. (i) hyponymy (ii) meronymy (iii) antonymy

3) Explain how n-gram counts can be used to estimate probabilities of word sequences [3 marks]

4) a) How do you define word sense disambiguation? With example   [3+ 3 marks]

   b) Explain WALKER S' ALGORITHM for resolving word Sense disambiguation

5) a) What is the use of Porters algorithm   [4 marks]

   b) Describe the following terms   [3 marks]

      i) Stemming

      ii) Ontology

      iii) Knowledge base