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**MCA DEGREE THIRD SEMESTER EXAMINATION, JANUARY 2022****20-382-0332 NATURAL LANGUAGE PROCESSING****(Regular)****Time : 3 Hours****Maximum Marks:50**

(Answer **ANY FIVE** questions)  
Each question carries **EQUAL** Marks.

Q.No		QUESTIONS	Marks	BL	PI
1.	(a)	Discuss in detail why do we need corpus? Substantiate it with the appropriate process that we need to proceed.	5	2	2.5.2
	(b)	With the help of development life cycle explain how can we build an intelligent system using the concept of NLP.	5	2	1.7.1
2.	(a)	What is Morphological Analysis? And explain about the classification of Morphemes.	5	2	1.7.1
	(b)	Apply morphological analysis for the given below morphemes with the help of diagrammatic representation identify the prefix, suffix and stem.  1. Unbreakable 2. Undesirability 3. Gentlemanliness 4. Antidisestablishment 5. Boyishness	5	3	2.5.2
3.	(a)	Discuss in detail about ambiguity and different type of ambiguities.	6	2	2.5.2
	(b)	Differentiate between stemming and lemmatization.	4	5	2.6.5
4.		Derive a top down & bottom up parse tree for the given below sentence: Sentence: " The angry bear chased the frightened little squirrel" Use the following grammar rules to create the Parse Trees S -> NP VP NP -> Det Noun VP -> V NP Noun -> Adj Noun   N Det -> the Adj -> little   angry   frightened N -> squirrel   bear V -> chased	10	6	2.5.3

5.	<p>Decide which parse tree is better for the given below sentence by following Probability context free grammar.</p> <p>Sentence : “ The boy saw the man with a telescope”</p> <table><tr><td>Grammar Rules:</td><td>Probabilities for Grammar Rules:</td></tr><tr><td>S -&gt; NP VP NP -&gt; Det Noun NP -&gt; Det Noun PP VP -&gt; verb NP VP -&gt; VP PP PP -&gt; Prep NP Det -&gt; the Det -&gt; a Noun -&gt; boy Noun -&gt; man Noun -&gt; telescope Verb -&gt; saw Prep -&gt; with</td><td>S -&gt; NP VP 1.0 NP -&gt; Det Noun 0.84 NP -&gt; Det Noun PP 0.16 VP -&gt; verb NP 0.6 VP -&gt; VP PP 0.4 PP -&gt; Prep NP 1.0 Det -&gt; the 0.67 Det -&gt; a 0.33 Noun -&gt; boy 0.33 Noun -&gt; man 0.33 Noun -&gt; telescope 0.34 Verb -&gt; saw 1.0 Prep -&gt; with 1.0</td></tr></table>	Grammar Rules:	Probabilities for Grammar Rules:	S -> NP VP NP -> Det Noun NP -> Det Noun PP VP -> verb NP VP -> VP PP PP -> Prep NP Det -> the Det -> a Noun -> boy Noun -> man Noun -> telescope Verb -> saw Prep -> with	S -> NP VP 1.0 NP -> Det Noun 0.84 NP -> Det Noun PP 0.16 VP -> verb NP 0.6 VP -> VP PP 0.4 PP -> Prep NP 1.0 Det -> the 0.67 Det -> a 0.33 Noun -> boy 0.33 Noun -> man 0.33 Noun -> telescope 0.34 Verb -> saw 1.0 Prep -> with 1.0	10	5	2.5.3
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6.	<p>Identify the important words in the given below documents by applying TF- IDF</p> <p>Document 1: Ben studies about computers in computer lab Document 2: Steve teaches at brown university Document 3: Data scientists work on large datasets</p>	10	2	2.6.3				
7.	<p>With the help of General architecture &amp; Practical architecture of Rule-Based system as expert system, Describe in detail about Rule Based System.</p>	10	5	2.7.1				

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