

--	--	--	--	--	--	--	--

**MCA DEGREE FIFTH SEMESTER EXAMINATION, JANUARY 2022**  
**19-381-0542 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	2.5.5
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							
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				

\*\*\*\*\*