



R20 Regulation **Subject code:3P6HB**
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, December 2024

NATURAL LANGUAGE PROCESSING
(CSE (DS))

Maximum Marks: 70

Date:30.12.2024

Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20) Marks)		CO	Bloom Tx
1	Define Tokenization and Hybrid Approaches?	1	L1
2	Perform parsing using simple top down parsing for the sentence "The dogs cried" using the grammar given below: S->NP VP,NP->ART N NP->ART ADJ N ,VP->V VP->V NP	1	L1
3	Discuss Structural ambiguity, Semantic ambiguity, Pragmatic ambiguity?	2	L1
4	Define Tree bank.	2	L1
5	Write the advantages of top-down & bottom-up approaches?	3	L1
6	Describe Frame based Knowledge Representation.	3	L1
7	Define NER?	4	L1
8	How NLU,NLP&NLG related?	4	L1
9	What are the applications of unigram?	5	L1
10	What is language modeling?	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx																																																
11	Write about Generative Model. Apply the naïve Bayes algorithm to obtain Likelihood table by finding the probabilities of given features. [10M]	1	L2																																																
<table><tr><td>Sl. No.</td><td>Play</td><td>Outlook</td><td>Sl. No.</td><td>Play</td><td>Outlook</td></tr><tr><td>0</td><td>Rainy</td><td>Yes</td><td>7</td><td>Overcast</td><td>Yes</td></tr><tr><td>1</td><td>Sunny</td><td>Yes</td><td>8</td><td>Rainy</td><td>No</td></tr><tr><td>2</td><td>Overcast</td><td>Yes</td><td>9</td><td>Sunny</td><td>No</td></tr><tr><td>3</td><td>Overcast</td><td>Yes</td><td>10</td><td>Sunny</td><td>Yes</td></tr><tr><td>4</td><td>Sunny</td><td>No</td><td>11</td><td>Rainy</td><td>No</td></tr><tr><td>5</td><td>Rainy</td><td>Yes</td><td>12</td><td>Overcast</td><td>Yes</td></tr><tr><td>6</td><td>Sunny</td><td>Yes</td><td>13</td><td>Overcast</td><td>Yes</td></tr></table>		Sl. No.	Play	Outlook	Sl. No.	Play	Outlook	0	Rainy	Yes	7	Overcast	Yes	1	Sunny	Yes	8	Rainy	No	2	Overcast	Yes	9	Sunny	No	3	Overcast	Yes	10	Sunny	Yes	4	Sunny	No	11	Rainy	No	5	Rainy	Yes	12	Overcast	Yes	6	Sunny	Yes	13	Overcast	Yes		
Sl. No.	Play	Outlook	Sl. No.	Play	Outlook																																														
0	Rainy	Yes	7	Overcast	Yes																																														
1	Sunny	Yes	8	Rainy	No																																														
2	Overcast	Yes	9	Sunny	No																																														
3	Overcast	Yes	10	Sunny	Yes																																														
4	Sunny	No	11	Rainy	No																																														
5	Rainy	Yes	12	Overcast	Yes																																														
6	Sunny	Yes	13	Overcast	Yes																																														
OR																																																			

OR

12	What do you mean Morphology, Explain different Morphological Models? [10M]	1	L2			
13	Differentiate between top-down & bottom-up parsing with an example. [10M]	2	L2			
	OR					
14	Given the following CFG grammar Perform syntactic analysis of the following sentence using any of the parsing method. [10M] “Book the flight through Houston”.	2	L2			
	<table><tr><td>$S \rightarrow NP VP$ $S \rightarrow Aux NP VP$ $S \rightarrow VP$ $NP \rightarrow Pronoun$ $NP \rightarrow Proper-Noun$ $NP \rightarrow Det Nominal$ $Nominal \rightarrow Noun$ $Nominal \rightarrow Nominal Noun$</td><td>$Det \rightarrow that, this, a, the$ $Noun \rightarrow book, man, flight$ $Verb \rightarrow book, include, prefer, man$ $Pronoun \rightarrow I, she, me$ $Proper-Noun \rightarrow Houston, TWA$ $Aux \rightarrow does$ $Preposition \rightarrow from, to, through$</td><td>$Nominal \rightarrow Nominal PP$ $VP \rightarrow Verb$ $VP \rightarrow Verb NP$ $VP \rightarrow Verb NP PP$ $VP \rightarrow Verb PP$ $VP \rightarrow VP PP$ $PP \rightarrow Preposition NP$</td></tr></table>	$S \rightarrow NP VP$ $S \rightarrow Aux NP VP$ $S \rightarrow VP$ $NP \rightarrow Pronoun$ $NP \rightarrow Proper-Noun$ $NP \rightarrow Det Nominal$ $Nominal \rightarrow Noun$ $Nominal \rightarrow Nominal Noun$	$Det \rightarrow that, this, a, the$ $Noun \rightarrow book, man, flight$ $Verb \rightarrow book, include, prefer, man$ $Pronoun \rightarrow I, she, me$ $Proper-Noun \rightarrow Houston, TWA$ $Aux \rightarrow does$ $Preposition \rightarrow from, to, through$	$Nominal \rightarrow Nominal PP$ $VP \rightarrow Verb$ $VP \rightarrow Verb NP$ $VP \rightarrow Verb NP PP$ $VP \rightarrow Verb PP$ $VP \rightarrow VP PP$ $PP \rightarrow Preposition NP$		
$S \rightarrow NP VP$ $S \rightarrow Aux NP VP$ $S \rightarrow VP$ $NP \rightarrow Pronoun$ $NP \rightarrow Proper-Noun$ $NP \rightarrow Det Nominal$ $Nominal \rightarrow Noun$ $Nominal \rightarrow Nominal Noun$	$Det \rightarrow that, this, a, the$ $Noun \rightarrow book, man, flight$ $Verb \rightarrow book, include, prefer, man$ $Pronoun \rightarrow I, she, me$ $Proper-Noun \rightarrow Houston, TWA$ $Aux \rightarrow does$ $Preposition \rightarrow from, to, through$	$Nominal \rightarrow Nominal PP$ $VP \rightarrow Verb$ $VP \rightarrow Verb NP$ $VP \rightarrow Verb NP PP$ $VP \rightarrow Verb PP$ $VP \rightarrow VP PP$ $PP \rightarrow Preposition NP$				
15	A) Describe Building blocks of Semantic System? [5M] B) Discuss Semi Supervised WSD Algorithm. [5M]	3	L2			
	OR					
16	A) Explain about Systems and Software. [5M] B) Discuss Word Sense and its applications. [5M]	3	L2			
17	Explain how semantic role labelling is done for nominal predicates or normalizations? [10M]	4	L2			
	OR					
18	Explain Prop Bank with parsing Tree and find out Predicate and arguments. [10M]	4	L2			
19	Explain unigram, bigram, trigram with example? [10M]	5	L2			
	OR					
20	Explain max ent language model & factored language model. [10M]	5	L2			