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Code No.: 18631 (A) N/O

## VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

## B.E. (I.T.) VIII-Semester Main & Backlog Examinations, May-2023 Natural Language Processing (PE-V)

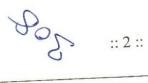
Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A  $(10 \times 2 = 20 \text{ Marks})$ 

Q. No.	Stem of the question			CO	D/
1.	For each sentence, identify whether the different meanings arise from structural ambiguity, semantic ambiguity or pragmatic ambiguity?	M 2	1	1	P(
	a. Time thes like an arrow				
2	b. He crushed the key to my heart				
2.	Explain why CFG is used to represent natural language in parsing	2	2	1	1
3.	Given a trained classifier, how could you set up an experiment to evaluate its performance on some new text?	2	1	2	1
4.	Please comment about squared loss and log loss in logistic regression?	2	1	2	1
5.	Explain about Skip Gram and Common Bag Of Words (CBOW) models?	2			
6.	How do you evaluate vector models?		2	3	1
7.	Why bias used in activation functions?	2	1	3	1
8.		2	2	4	1
	What are limitations of LSTM and explain what is long term memory and short term memory w.r.t language models?	2	1	4	1
9.	Define the encoder-decoder networks components and its applications?	2	0		
10.	What are the various metrics used to evaluate language models?	2	2	5	1
1	Part-B $(5 \times 8 = 40 \text{ Marks})$	2	1	5	1
1. a)	Apply different smoothing techniques to handle data sparseness problem in n-gram model?	3	3	1	2
b) 1	Use Bi-Gram and Tri-gram model on following training corpus:				
	1. Hank you so much for your help.	5	3	1	2
	2. I really appreciate your help.				
	3. Excuse me, do you know what time it is?				
	4. I'm really sorry for not inviting you.				
	5. I really like your watch.				
	Which one is used to optimize any machine learning model for text classification? Justify your answer				
. a) D	iscuss about logistic regression w.r.t. text classification.				
	text classification.	1	2 2	2 1	



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		0.11	1:1:	elihoods for each word being part of a positive or	4	3	2	2
b)	Assume the negative n	ne follo novie re	wing ilk	nd equal prior probabilities for each class.				
		pos	neg					
	I	0.09	0.16					
	always	0.07	0.06					
	like	0.29	0.06					
	foreign	0.04	0.15					
	movies	0.08	0.11	17 famign				
	What cla	ss will	Naive	bayes assign to the sentence "I always like foreign				
	films."?				3	2	3	1
13. a)	Demons	trate ap	plicatio	ns of TF-IDF and PPMI?	5	3	3	2
b)	Apply L	earning	g skip-g	ram embedding with suitable scenario.		2	4	1
14. a)	Explain	the sig	nificanc	e of different gates in LSTM. Also explain its	4	2	7	
	limitatio	ons			4	3	4	1
- b)	Describ	e how	recurren	t neural networks are modelled for sentiment	-	_		
	classific				4	2	5	1
15. a	) Discuss	GRUS	with ne	at diagram?	4	2	5	1
b	) Explain	how F	rame ba	sed dialogue system are used for machine	1	24		
	translat	ion?		Torging?	5	2	1	1
16. a	) Discus	s how I	Hidden 1	Markov Model is used for Part-of-Speech Tagging?	2	3	2	2
b	Analys solve i	sis the o	ptimiza gradien	tion problem in Logistic Regression and how do you decent method?	3	3	2	
17.	Answe	er any t	wo of th	e following:			2	1
	a) Analy examp	sis the	import	ant of Word Embedding techniques in NLP wi	th 4			1
	1		problem	how do we solve it?	4			]
	c) Apply diagra	the b	eam se	arch algorithm in machine translation, discuss wi	th 4			- 2

M: Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

	DI Tavanamy Lavel – 1	20%
)	Blooms Taxonomy Level – 1	40%
	Blooms Taxonomy Level - 2	40%
)	Blooms Taxonomy Level – 3 & 4	

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