Hall Ticket Number:

Code No. : 17255 (A) N

VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (C.S.E. & AIML) VII-Semester Main Examinations, Dec.-23/Jan.-24

Natural Language Processing (PE-IV)

Time: **3 hours** Max. Marks: **60**

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

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Give two examples of structural ambiguity in English and in your mother tongue. (Total 4 sentences having more than one meaning each)	2	2	1	1,2
2.	Show how ambiguity affects the performance of MT systems.	2	1	1	1,2
3.	How are POS taggers useful in NLP applications?	2	2	2	1,2
4.	What is a treebank? What are its uses?	2	1	2	1,2
5.	What is vector space semantics? Mention how it is useful in any one NLP application.	2	3	3	1,2,3
6.	Semantic vector space models are useful in sentiment analysis tasks. Explain briefly.	2	1	3	1,2
7.	What is RNN? How is it different from other models?	2	1	4	1,2
8.	Briefly describe any two transformer models trained as language models.	2	2	4	1,2
9.	Give an architecture for a spoken dialog system showing sub-modules also.	2	3	5	1,2,3
10.	What are the challenges of building a chatbot in your mother tongue?	2	4	5	1,2,3
	Part-B (5 × 8 = 40 Marks)				
11. a)	How do you use Naïve Bayes approach in NLP?	3	2	1	1,2
b)	How can we detect hate speech in social media data like Twitter data? Mention the steps.	5	3	1	1,2,3
12. a)	What is PCFG?	3	2	2	1,2
b)	How do you calculate the scores for the rules in PCFG? What role does domain play in the scoring and in disambiguation?	5	4	2	1,2,3
13. a)	What is Sentiment Analysis? What are its uses in the real world?	4	1	3	1,2
b)	If you have to build a sentiment analyser for a new language from scratch, what would be the tasks and steps involved?	4	2	3	1,2

Contd... 2

14. a)	Have AI apps like ChatGPT made our life easier or difficult? Explain whatever your point of view is.	4	4	4	1,2,3
b)	Why there is so much of buzz about large language models today? How are they useful?	4	4	4	1,2,3
15. a)	How are Transformers trained? How do they learn a language?	4	2	5	1,2
b)	What is transfer learning? Give some examples of deep transfer learning applications.	4	3	5	1,2,3
16. a)	What is smoothing in N-gram model?	4	1	1	1,2
b)	What are the main differences between a constituency parser and a dependency parser?	4	3	2	1,2,3
17.	Answer any ***two*** of the following:				
a)	What are the limitations of TF-IDF? How is it different from Word2Vec technique?	4	2	3	1,2
b)	Explain how feedfoward network is used for language modelling.	4	3	4	1,2,3
c)	Explain how similarities and dissimilarities between languages help in building multilingual MT systems.	4	3	5	1,2,3

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

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	30%
iii)	Blooms Taxonomy Level – 3 & 4	50%

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