Course Code: 23CS0540 **R23**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583
QUESTION BANK (DESCRIPTIVE)

Subject with Code: NATURAL LANGUAGE PROCESSING (23CS0540)
Course & Branch: B.Tech – CSM & CAI
Regulation: R23 **Year & Sem:** III - B.Tech & I-Sem

UNIT – I

Introduction to Natural language

1	a)	What is natural language Processing?	[L1][CO1]	[2M]
	b)	Define intrinsic and extrinsic evaluation in NLP.	[L1][CO1]	[2M]
	c)	What are the basic units of syntax?	[L1][CO1]	[2M]
	d)	What is morphology?	[L1][CO1]	[2M]
	e)	Define Natural Language Understanding.	[L1][CO1]	[2M]
2	a)	Explain about The Study of Language in natural language processing.	[L2][CO1]	[6M]
	b)	Classify history of NLP	[L4][CO1]	[6M]
3	a)	Prioritize the Key Aspects of Language Study in NLP	[L5][CO1]	[6M]
	b)	Define natural language processing, list the applications of NLP	[L1][CO1]	[6M]
4	Justify any six Applications of NLP		[L6][CO1]	[12M]
5	Classify Evaluating Language Understanding Systems		[L4][CO1]	[12M]
6	a)	Illustrate intrinsic evaluation and extrinsic evaluation in language evaluation	[L3][CO1]	[6M]
	b)	Differentiate intrinsic evaluation and extrinsic evaluation	[L4][CO1]	[6M]
7	a)	Devise Different Levels of Language Analysis in NLP	[L4][CO1]	[6M]
	b)	Describe Phonology and morphology in Levels of Language Analysis	[L2][CO1]	[6M]
8	Discuss Representations and Understanding in NLP		[L2][CO1]	[12M]
9	Illustrate Organization of Natural language Under standing Systems		[L3][CO1]	[12M]
10	Discriminate Linguistic Back ground: Anoutline of English Syntax.		[L4][CO1]	[12M]

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UNIT – II

Grammars and Parsing

1	**a)**	Write about Top-Down Parsers?	**[L1][CO2]**	**[2M]**
	b)	Define Lexicons.	**[L1][CO2]**	**[2M]**
	c)	What is ATN?	**[L1][CO2]**	**[2M]**
	d)	What is Bayes Rule?	**[L1][CO2]**	**[2M]**
	e)	What are the basic issues in parsing?	**[L1][CO2]**	**[2M]**
2	**a)**	Define grammar in NLP, list and explain types of grammar.	**[L2][CO2]**	**[6M]**
	b)	Examine Context free grammar in NLP	**[L3][CO2]**	**[6M]**
3	**a)**	What is parsing? Explain with Features in NLP?	**[L2][CO2]**	**[6M]**
	b)	Dissect Different types of Parsers and explain them?	**[L4][CO2]**	**[6M]**
4	Describe top down parser and explain the working with example		**[L2][CO2]**	**[12M]**
5	Devise bottom up parser and explain the process of working with example		**[L4][CO2]**	**[12M]**
6	**a)**	Illustrate Transition Network Grammars	**[L3][CO2]**	**[6M]**
	b)	Differentiate Transition Network Grammars, Augmented Transition Networks	**[L4][C02]**	**[6M]**
7	**a)**	Justify Feature Systems and Augmented Grammars	**[L5][CO2]**	**[6M]**
	b)	Classify Morphological Analysis and the Lexicon in NLP	**[L4][CO2]**	**[6M]**
8	**a)**	Discriminate Augmented Transition Networks explain with example	**[L5][CO2]**	**[6M]**
	b)	Dissect the Parsing with Features	**[L4][CO2]**	**[6M]**
9	**a)**	Generalize Bayees Rule, examine with example	**[L6][CO2]**	**[6M]**
	b)	Construct Shannon game with example	**[L6][CO2]**	**[6M]**
10	Examine Entropy and Cross Entropy in NLP		**[L3][CO2]**	**[12M]**

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UNIT – III

Grammars for Natural Language

1	**a)**	What is probabilistic lexicalized CFG?	**[L1][CO3]**	**[2M]**
	b)	Define Reference resolution.	**[L1][CO3]**	**[2M]**
	c)	What is a human preference in parsers?	**[L1][CO3]**	**[2M]**
	d)	What is shift reduce parsers.	**[L1][CO3]**	**[2M]**
	e)	Explain about relative clauses?	**[L1][CO3]**	**[2M]**
2	**a)**	Explain why formal grammars are important in Natural Language Processing (NLP). Give two practical applications where grammars are used.	**[L2][CO3]**	**[6M]**
	b)	Discuss the role of formal grammars in natural language processing. Compare context-free grammars with dependency grammars	**[L2][CO3]**	**[6M]**
3		Dissect wh-movement with an example. Why does it pose challenges for parsers?	**[L4][CO3]**	**[12M]**
4		List and explain the different forms of movement phenomenon in natural language with suitable examples.	**[L2][CO3]**	**[12M]**
5	**a)**	What is gap threading in natural language parsing? Explain with an example how it helps in handling movement phenomena like wh-questions.	**[L2][CO3]**	**[6M]**
	b)	Discuss the role of gap threading in resolving filler-gap dependencies. Why is it important for computational models of grammar?	**[L2][CO3]**	**[6M]**
6		Examine the principles of human parsing preferences, such as minimal attachment and right association. How do these preferences help explain garden-path sentences?	**[L3][CO3]**	**[12M]**
7		classify the working of a shift-reduce parser with a suitable example. Why is it called a bottom-up parsing technique?	**[L4][CO3]**	**[12M]**
8		Justify common parsing conflicts in shift-reduce parsers? Illustrate with examples	**[L6][CO3]**	**[12M]**
9		Illustrate deterministic parser? How does it differ from a nondeterministic parser? Give one example.	**[L3][CO3]**	**[12M]**
10		Divise the advantages and limitations of deterministic parsers in Natural Language Processing (NLP).	**[L6][CO3]**	**[12M]**

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UNIT-IV
Semantic Interpretation, Language Modelling

1	**a)**	What is semantic interpretation in natural language processing.	**[L1][CO4]**	**[2M]**
	b)	What is a proposition in logical form.	**[L1][CO4]**	**[2M]**
	c)	What is the role of parentheses in encoding ambiguity.	**[L1][CO4]**	**[2M]**
	d)	How is language modelling important in speech recognition.	**[L1][CO4]**	**[2M]**
	e)	What is dynamic adaptation in language modelling.	**[L1][CO4]**	**[2M]**
2	**a)**	Explain how semantic representation aids in computational processing of language.	**[L2][CO4]**	**[6M]**
	b)	Examine the challenges of word sense disambiguation in computational semantics.	**[L3][CO4]**	**[6M]**
3	**a)**	Discuss methods used to resolve lexical ambiguity using context.	**[L2][CO4]**	**[6M]**
	b)	Minimize how predicate logic is used to represent natural language sentences.	**[L6][CO4]**	**[6M]**
4	**a)**	Illustrate how ambiguity in natural language can be captured using multiple logical forms.	**[L3][CO4]**	**[6M]**
	b)	Devise examples of ambiguity and their logical encodings.	**[L4][CO4]**	**[6M]**
5	**a)**	Discriminate how states and events are encoded in logical form.	**[L4][CO4]**	**[6M]**
	b)	Express the importance of the matic roles in semantic representation.	**[L6][CO4]**	**[6M]**
6	**a)**	Justify the classification of speech acts and their semantic interpretation.	**[L5][CO4]**	**[6M]**
	b)	Prioritize the role of model theory in defining sentence meaning.	**[L5][CO4]**	**[6M]**
7	**a)**	Dissect the role of language models in speech recognition and machine translation.	**[L4][CO4]**	**[6M]**
	b)	Classify how an n-gram language model is constructed and used.	**[L4][CO4]**	**[6M]**
8	**a)**	Describe various techniques used for adapting language models to new domains.	**[L2][CO4]**	**[6M]**
	b)	Compare traditional n-gram models with neural network-based models like RNN and Transformer.	**[L5][CO4]**	**[6M]**
9	Generalize the working of a Transformer-based language model like BERT or GPT.		**[L6][CO4]**	**[12M]**
10	Simplify how tokenization and sub word modelling help in language-specific problems.		**[L4][CO4]**	**[12M]**

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UNIT-V

Machine Translation, Multilingual Information Retrieval, Multilingual Automatic Summarization

1	**a)**	What is structural ambiguity in MT.	**[L1][CO5]**	**[2M]**
	b)	What was the impact of ALPAC report on MT.	**[L1][CO5]**	**[2M]**
	c)	What is the main advantage of neural machine translation.	**[L1][CO5]**	**[2M]**
	d)	Define stemming and give an example.	**[L1][CO6]**	**[2M]**
	e)	Name any two dataset that contains summaries in multiple languages.	**[L1][CO6]**	**[2M]**
2	**a)**	Express the importance of machine translation in the modern multilingual world.	**[L6][CO5]**	**[6M]**
	b)	Describe the input-output process of a basic MT system.	**[L2][CO5]**	**[6M]**
3	**a)**	Dissect major linguistic challenges (ambiguity, context, syntax differences) in machine translation.	**[L4][CO5]**	**[6M]**
	b)	Examine brief history of Machine translation, with possible approaches.	**[L3][CO5]**	**[6M]**
4	**a)**	Describe the background and motivation for developing the Anusaraka system.	**[L2][CO5]**	**[6M]**
	b)	Examine how the Anusaraka system differs from traditional MT systems.	**[L3][CO5]**	**[6M]**
5	**a)**	Classify document pre-processing in Multilingual Information Retrieval	**[L4][CO6]**	**[6M]**
	b)	Prioritize Monolingual Information Retrieval in Multilingual Information Retrieval	**[L4][CO6]**	**[6M]**
6	**a)**	Evaluate the Evaluation in Information Retrieval	**[L5][CO6]**	**[6M]**
	b)	Maximize Tools, Software and Resources in Multilingual Information Retrieval	**[L6][CO6]**	**[6M]**
7	**a)**	Classify CLIR with example.	**[L4][CO6]**	**[6M]**
	b)	Justify MLIR and explain with any one example	**[L5][CO6]**	**[6M]**
8	**a)**	Define Multilingual Automatic Summarization, explain with examples	**[L2][CO6]**	**[6M]**
	b)	Develop different approaches for Multilingual Automatic Summarization	**[L2][CO6]**	**[6M]**
9	Generalize summarization, explain with approaches and benefits of summarization		**[L6][CO6]**	**[12M]**
10	**a)**	Dissect Manual Evaluation Methodologies in summarization	**[L4][CO6]**	**[6M]**
	b)	Devise Automated Evaluation Methodologies in summarization	**[L4][CO6]**	**[6M]**

Prepared By

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