



## NARSIMHA REDDY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, NewDelhi & Affiliated to JNTUH, Hyderabad  
Accredited by NBA&NAAC with A Grade

### COURSE FILE

Program Name : CSE(AIML)  
Name of the Course : NATURAL LANGUAGE PROCESSING  
Course Code : AM3104PC  
Semester and Year : III-I  
Faculty Name : ANUSHA K

S.No	Contents	Included
1	Vision, Mission, COs, POs, PSOs, PEOs	
2	Academic calendar	
3	Syllabus	
4	CO/PO mapping	
5	Nominal Rolls of the Students	
6	Timetable	
7	Lesson Plan	
8	Unit wise Question Bank	
9	Old Question Papers	
10	Question Papers (CIA&SEE)	
11	Tutorial sheets	
12	Learning Methodologies: Experiential learning (Industrial visits, Internships, Mini Projects, Academic Projects, Guest Lectures, Student Workshop etc.), Problem Solving methodologies (assignments, quiz, case study etc.) <b>Note: 1. At least TWO learning Methodologies to be included in your course</b> <b>2. The above methodologies for illustration ,you may add more</b>	
13	Subject notes/PPTs/self study material	
14	Feedback on Curriculum Design and development	
15	CO/PO attainment, analysis and Action taken report	

Recommendation/Remarks:

Signature of the Faculty

Signature of the Head

Signature of the Principal

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## **1.Department Vision & Mission**

### **Vision of the Department:**

To emerge as a center of excellence with international reputation by adapting the rapid advancements in the computer specialization fields.

### **Mission of the Department:**

1. To provide a strong theoretical and practical background in the area of computer science with an emphasize on software development
2. To inculcate Professional behavior, strong ethical values, leadership qualities, research capabilities and lifelong learning.
3. To educate students to be effective problem solvers, apply knowledge with social sensitivity for the betterment of the society and humanity as a whole.

### **PROGRAM OUTCOMES:**

**PO1. Engineering knowledge:** Apply the knowledge of basic sciences and fundamental engineering concepts in solving engineering problems.

**PO2. Problem analysis:** Identify and define engineering problems, conduct experiments and investigate to analyze and interpret data to arrive at substantial conclusions.

**PO3. Design/development of solutions:** Propose an appropriate solution for engineering problems complying with functional constraints such as economic, environmental, societal, ethical, safety and sustainability.

**PO4. Conduct investigations of complex problems:** Perform investigations, design and conduct experiments, analyze and interpret the results to provide valid conclusions.

**PO5. Modern tool usage:** Select or create and apply appropriate techniques and IT tools for the design & analysis of the systems.

**PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO7. Environment and sustainability:** Demonstrate professional skills and contextual reasoning to assess environmental or societal issues for sustainable development.

**PO8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary situations.

**PO10. Communication:** Communicate effectively among engineering community, being able to comprehend and write effectively reports, presentation and give / receive clear instructions.

**PO11. Project management and finance:** Demonstrate and apply engineering & management principles in their own / team projects in multidisciplinary environment.

**PO12. Life-long learning:** Recognize the need for, and have the ability to engage in independent and lifelong learning

### **PROGRAM SPECIFIC OUTCOMES**

**PSO1:** To provide effective and efficient real time solutions using acquired knowledge in various domains to crack problem using suitable mathematical analysis, data structure and suitable algorithm.

**PSO2:** To develop environmental and sustainable engineering solution having global and societal context using modern IT tools.

**PSO3:** To exhibit professional and leadership skills with ethical values dealing diversified projects with excellent communication and documentation qualities

### **Program Educational Objectives (PEOs) :**

PEO#1 To apply the knowledge of mathematics, basic sciences and engineering solving the real world computing problems to succeed in higher education and professional careers.

PEO#2 To develop the skills required to comprehend, analyze, design and create innovative computing products and solutions for real life problems.

PEO#3 To inculcate professional and ethical attitude, communication and teamwork skills, multi-disciplinary approach and an ability to relate computer engineering issues with social awareness.

### **List Of CO's:**

Course Code.CO No	Course Outcomes (CO's)
At the end of the course student will be able to	
C324.1	<ul style="list-style-type: none"> <li>• Show sensitivity to linguistic phenomena and an ability to model them with formal grammars.</li> </ul>
C324.2	<ul style="list-style-type: none"> <li>• Understand and carry out proper experimental methodology for training and evaluating empirical NLP systems.</li> </ul>
C324.3	<ul style="list-style-type: none"> <li>• Able to manipulate probabilities, construct statistical models over strings and trees, and estimate parameters using supervised and unsupervised training methods.</li> </ul>
C324.4	<ul style="list-style-type: none"> <li>• Able to design, implement , and analyze NLP algorithms.</li> </ul>
C324.5	<ul style="list-style-type: none"> <li>• Able to design different language modeling Techniques.</li> </ul>

## 2.ACADEMIC CALENDAR



## NARSIMHA REDDY ENGINEERING COLLEGE

(UGC-AUTONOMOUS)

(Sponsored by Jakkula Educational Society)

Maisammaguda (V), Dhulapally Post, Near Kompally, Secunderabad - 500 100 Telangana

Affiliated to JNTUH, Approved by AICTE, New Delhi, Courses Accredited by NBA, NAAC with "A" Grade, An ISO 9001: 2015 Certified Institution

### PROPOSED ACADEMIC CALENDAR FOR B.TECH III YEAR I SEMESTER FOR THE AY 2022-23

S.No.	Description	Duration		Duration (Weeks)
		From	To	
1	Commencement of I Semester class work	23-08-2022		
2	1 <sup>st</sup> Spell of Instructions(Including Dussera Vacation)	23-08-2022	22-10-2022	9
3	First Mid Term Examinations	24-10-2022	29-10-2022	1
4	Submission of Mid-I Marks	02-11-2022		
5	Parent-Teacher Meeting	05-11-2022		
6	2 <sup>nd</sup> Spell of Instructions	31-10-2022	24-12-2022	8
7	Second Mid Term Examinations	27-12-2022	31-12-2022	1
8	Submission of Mid-II Marks	04-01-2023		
9	Preparation Holidays & Lab Examinations	02-01-2023	07-01-2023	1
10	End Semester Examinations	09-01-2023	21-01-2023	2

### PROPOSED ACADEMIC CALENDAR FOR B.TECH III YEAR II SEMESTER FOR THE AY 2022-23

S.No.	Description	Duration		
		From	To	
1	Commencement of II Semester class work	23-01-2023		
2	1 <sup>st</sup> Spell of Instructions	23-01-2023	18-03-2023	8
3	First Mid Term Examinations	20-03-2023	25-03-2023	1
4	Submission of Mid-I Marks	29-03-2023		
5	Parent-Teacher Meeting	01-04-2023		
6	2 <sup>nd</sup> Spell of Instructions(Including 2 Week Summer Vacation)	27-03-2023	03-06-2023	10
7	Second Mid Term Examinations	05-06-2023	10-06-2023	1
8	Submission of Mid-II Marks	14-06-2023		
9	Preparation Holidays & Lab Examinations	12-06-2023	17-06-2023	1
10	End Semester Examinations	19-06-2023	01-07-2023	2

Copy to:

1. Chairman
2. IQAC
3. All HODs
4. Administrative Officer
5. Account officer
6. Web Portal I/C
7. ERP I/C
8. Library
9. Student Notice Boards

  
**PRINCIPAL**  
**NARSIMHA REDDY ENGINEERING COLLEGE**  
 Survey No. 518, Maisammaguda (V), Dhulapally (P)  
 Medchal (M), Medchal Dist, Hyderabad-500 100

### 3. SYLLABUS:

#### UNIT-I

**Finding the Structure of Words:** Words and Their Components, Issues and Challenges,



Morphological Models

**Finding the Structure of Documents:** Introduction, Methods, Complexity of the Approaches, Performances of the Approaches

## UNIT-II

**Syntax Analysis:** Parsing Natural Language, Treebanks: A Data-Driven Approach to Syntax, Representation of Syntactic Structure, Parsing Algorithms, Models for Ambiguity Resolution in Parsing, Multilingual Issues

## UNIT-III

**Semantic Parsing:** Introduction, Semantic Interpretation, System Paradigms, Word Sense Systems, Software.

## UNIT-IV

Predicate- Argument Structure, Meaning Representation Systems, Software.

## UNIT-V

**Discourse Processing:** Cohesion, Reference Resolution, Discourse Cohesion and Structure **Language Modeling:** Introduction, N-Gram Models, Language Model Evaluation, Parameter Estimation, Language Model Adaptation, Types of Language Models, Language-Specific Modeling Problems, Multilingual and Crosslingual Language Modeling

## TEXTBOOKS:

1. Multilingual natural Language Processing Applications: From Theory to Practice— Daniel M. Bikel and Imed Zitouni, Pearson Publication.
2. Natural Language Processing and Information Retrieval: Tanvir Siddiqui, U.S. Tiwary.

## REFERENCE:

1. Speech and Natural Language Processing— Daniel Jurafsky & James H. Martin, Pearson Publications.

## 4. Course Outcome (CO)-Program Outcome (PO) Matrix: (2022-2023)

Course Name: NLP

	PO1	PO[2]	PO[3]	PO[4]	PO[5]	PO[6]	PO[7]	PO[8]	PO[9]	PO[10]	PO[11]	PO[12]
CO[1]	3	2										
CO[2]			3	3								
CO[3]			3	2	2							

CO[4]			3	2								
CO[5]			3		2							

### Mapping of course outcomes with PSO's

CO PSO mapping(2022-23)

	PSO[1]	PSO[2]	PSO[3]
CO[1]	3		
CO[2]	3		
CO[3]	3	2	
CO[4]	2		
CO[5]	2	3	

### 5.Nominal Rolls:

S.No	HALL TICKET NUMBER	Name of the Candidate
1	20X01A6701	AKULA PAVANI
2	20X01A6702	GEERLAPALLY PHANINDRA
3	20X01A6703	GANGMAN SRINIVAS
4	20X01A6704	PARSHIPOGU SOLOMAN RAJU
5	20X01A6705	KURUVA YOKESH KUMAR
6	20X01A6706	PANKAJ PANDAY
7	20X01A6707	THOTAKURI ABHINAV
8	20X01A6708	THOTA DEEPAK
9	21X05A6701	AJJA SAIRAM
10	21X05A6702	AKULA VINAY KUMAR
11	21X05A6703	ALGAM SAI KISHNA

12	21X05A6704	AMASANI SUMANTH
13	21X05A6705	ANUVARTH SINGH
14	21X05A6706	ATIKEM SAI MANOHAR
15	21X05A6707	BADDAM POOJITHA
16	21X05A6708	BASAM PAVANI
17	21X05A6709	BODDUPALLY RENUKA
18	21X05A6710	BOOSA RISHITHA
19	21X05A6711	CHINNABALA SANDEEP
20	21X05A6712	CHITTIMALLI MAHESH
21	21X05A6713	CHUNDURU VISWANTH
22	21X05A6714	DANDLA SHYAM PRASAD
23	21X05A6715	ENAGATI ANJU KUMAR
24	21X05A6716	G LAVANYA
25	21X05A6717	GADDAMEDDI PRASHANTH GOUD
26	21X05A6718	GONDLA YALA SRAVAN KUMAR GOUD
27	21X05A6719	GORLA PRASHANTH REDDY
28	21X05A6720	HEEREKAR CHAITANYA SAI
29	21X05A6721	JINNARAM KEERTHANA
30	21X05A6722	JITTUGA CHANDRA VARDHAN
31	21X05A6723	K VINOD



32	21X05A6724	KALERU ABHIRAM
33	21X05A6725	KALLA SHIVA
34	21X05A6726	KAMMARI NIKHI CHARY
35	21X05A6727	KANDI SAI KUMAR REDDY
36	21X05A6728	KASARAM NITHISH
37	21X05A6729	KATRIYALA SHASHI VARDHAN
38	21X05A6730	KONDAM SWETHA
39	21X05A6731	KOTHA SAI VINAY
40	21X05A6732	KUMARI THARUN
41	21X05A6733	MANDE SADEEP
42	21X05A6734	MANGAL SHIVA KUMAR
43	21X05A6735	MEDE SAI PRASAD
44	21X05A6736	MOHAMMED DAWOOD
45	21X05A6737	MOHD IBRAHAM ALI
46	21X05A6738	N SURESH
47	21X05A6739	NERASINAM MANICHAND
48	21X05A6740	P RAFEEQ
49	21X05A6741	PANJALA AKANKSHA
50	21X05A6742	PILLALAMARI SAI KUMAR
51	21X05A6743	PUSALA GANESH

52	21X05A6744	RAGULA DURGA PRASAD GOUD
53	21X05A6745	RAM PRAVEEN YADAV
54	21X05A6746	SABBANI VAMSHI
55	21X05A6747	SANKARI RAJITHA
56	21X05A6748	SHERU UDAY KIRAN
57	21X05A6749	STAMBAKADI ADARSH
58	21X05A6750	TANNIRU SHREYA
59	21X05A6751	TANNIRU SHIRISHA
60	21X05A6752	VELDURTHY SAI DURGA PRASAD
61	21X05A6753	VENEPALLY SUDARSHAN
62	21X05A6754	VENKAT ANARASU CHARAN

#### 6.CLASS TIME TABLE

CLASS: III YEAR CSE AIML – I SEM (2022-2023)

ROOM NUMBER:213 WEF:22//8/2022

CLASS INCHARGE: M.Mounika

CLASS ROOMS: 1st floor						CLASS ROOMS: 2nd floor		
	1	2	3	4	:50PM – :40PM  L U N C H	5	6	7
HOUR/DAY	9:30AM - 10:20AM	10:20AM - 11:10AM	11:10AM - 12:00PM	12.00PM- 12.50PM		1:40PM -2:30PM	2:30PM - 3:20PM	3:20PM - 4.10PM
MON	AI	NLP	R	DAA		NLP	R	AI
TUE	NLP	DAA	AI	PPL		IRS	PPL	SPORTS
WED	AI	NLP	IRS	IRS		R LAB		
THU	PPL	DAA LAB				R	IRS	DAA
FRI	DAA	PPL	AI	R		AECS LAB		
SAT	PPL	IRS	DAA	LIBRARY		R	NLP	SPORTS

## 7.DETAILED LECTURE PLAN(2022-23)

S.N o	Tentative Date	Topics as per JNTUH Syllabus	Topic Actually Covered	Suggest ed Book	Method of Teaching
					BB/PPT
	UNIT I Finding the Structure of Words:				
1	23-08-2022	Finding the Structure of Words:	Finding the Structure of Words:	T1,T2	BB
2	26-08-2022	Words and Their Components	Words and Their Components	T1,T2	BB
3	29-08-2022	Words and Their Components	Words and Their Components	T2	BB
4	29-08-2022	Words and Their Components	Words and Their Components	T2	BB
5	30-08-2022	Issues and Challenges	Issues and Challenges	T2	BB
6	02-09-2022	Issues and Challenges	Issues and Challenges	T2	BB
7	05-09-2022	MorphologicalModels	MorphologicalModels	T2	BB
8	05-09-2022	MorphologicalModels	MorphologicalModels	T2	BB
9	06-09-2022	FindingtheStructureo fDocuments	FindingtheStructureo fDocuments	T2	BB
10	09-09-2022	Introduction	Introduction	T2	BB
11	12-09-2022	Methods	Methods	T2	BB
12	12-09-2022	Methods	Methods	T2	BB
13	13-09-2022	ComplexityoftheAppr oaches	ComplexityoftheAppr oaches	T2	BB
14	16-09-2022	Complexity of the Approaches	Complexity of the Approaches	T2	BB
15	19-09-2022	Performances of the Approaches	Performances of the Approaches	T2	BB
16	19-09-2022	Performances of the Approaches	Performances oftheApproaches	T2	BB
	UNIT - II Syntax Analysis:				

17	20-09-2022	Syntax Analysis	Syntax Analysis	T2	BB
18	23-09-2022	Parsing Natural Language	Parsing Natural Language	T2	BB
19	26-09-2022	Treebanks	Treebanks	T2	BB
20	26-09-2022	A Data-Driven Approach to Syntax	A Data-Driven Approach to Syntax	T2	BB
21	27-09-2022	Representation of Syntactic Structure	Representation of Syntactic Structure	T2	BB
22	30-09-2022	Parsing Algorithms	Parsing Algorithms	T2	BB
23	07-10-2022	Models for Ambiguity Resolution in Parsing	Models for Ambiguity Resolution in Parsing	T2	BB
24	10-10-2022	Models for Ambiguity Resolution in Parsing	Models for Ambiguity Resolution in Parsing	T2	BB
25	10-10-2022	Multilingual Issues	Multilingual Issues	T2	BB
26	11-10-2022	Multilingual Issues	Multilingual Issues	T2	BB
<b>UNIT - III Semantic Parsing:</b>					
27	14-10-2022	Semantic Parsing	Semantic Parsing	T2	BB
28	17-10-2022	Introduction	Introduction	T2	BB
29	17-10-2022	Semantic Interpretation	Semantic Interpretation	T2	BB
30	18-10-2022	Semantic Interpretation	Semantic Interpretation	T2	BB
31	21-10-2022	System Paradigms	System Paradigms	T2	BB
32	31-10-2022	System Paradigms	System Paradigms	T2	BB
33	31-10-2022	Word Sense Systems	Word Sense Systems	T2	BB
34	01-11-2022	Word Sense Systems	Word Sense Systems	T2	BB
35	04-11-2022	Software	Software	T2	BB

39	07-11-2022	Software	Software	T2	BB
	<b>UNIT - IV</b> <b>Predicate-,,</b>				
40	07-11-2022	Predicate	Predicate	T2	BB
41	08-11-2022	Predicate	Predicate	T2	BB
42	11-11-2022	Argument Structure	Argument Structure	T2	BB
43	14-11-2022	Argument Structure	Argument Structure	T2	BB
44	14-11-2022	Meaning Representation Systems	Meaning Representation Systems	T2	BB
45	15-11-2022	Meaning Representation Systems	Meaning Representation Systems	T2	BB
46	18-11-2022	Meaning Representation Systems	Meaning Representation Systems	T2	BB
47	21-11-2022	Software	Software	T2	BB
48	21-11-2022	Software	Software	T2	BB
49	22-11-2022	Software	Software	T2	BB
	<b>UNIT - V</b> <b>Discourse Processing;</b>				
50	25-11-2022	Discourse Processing	Discourse Processing	T2	BB
51	28-11-2022	Cohension	Cohension	T1,T2	BB
52	28-11-2022	Reference Resolution	Reference Resolution	T1,T2	BB
53	29-11-2022	Discourse Cohension and Structure Language Modeling	Discourse Cohension and Structure Language Modeling	T1,T2	BB
54	02-12-2022	: Introduction	Introduction	T1,T2	BB
55	05-12-2022	N-Gram Models,	N-Gram Models,	T1,T2	BB
56	06-12-2022	Language Model Evaluation	Language Model Evaluation	T1,T2	BB
57	09-12-2022	Parameter Estimation	Parameter Estimation	T1,T2	BB

58	12-12-2022	Language Model Adaptation	Language Model Adaptation	T1,T2	BB
59	12-12-2022	Types of Language Models	Types of Language Models	T1,T2	BB
60	13-12-2022	Language-Specific Modeling Problems	Language-Specific Modeling Problems	T1,T2	BB
61	16-12-2022	Language-Specific Modeling Problems	Language-Specific Modeling Problems	T1,T2	BB
62	19-12-2022	Multilingual Modeling	Multilingual Modeling	T1,T2	BB
63	19-12-2022	Crosslingual Language Modeling	Crosslingual Language Modeling	T1,T2	BB

## 8. Unit wise Question Bank

### UNIT-I

#### Finding the structure of words

S.No	Questions	BT	CO	PO
<b>Part –A(Short Answer Questions)</b>				
1	List the methods of Word components	L1	CO1	PO1,PO2
2	What is a Token	L1	CO1	PO1,PO2
3	Define NLP	L1	CO1	PO1,PO2
4	What do you mean by Morphemes?	L1	CO1	PO1,PO2
5	What is Natural Language Processing? Discuss With some applications.	L1	CO1	PO1,PO2
6	What is Morphology?	L1	CO1	PO1,PO2
7	Analyze the usage of feature structures in NLP.	L1	CO1	PO1,PO2
8	List out the morphological models?	L1	CO1	PO1,PO2
9	What do you meant by NLP algorithm	L1	CO1	PO1,PO2
10	What is Lexeme.	L1	CO1	PO1,PO2
<b>Part– B(Long Answer Questions)</b>				
11	a) Analyse how statistical methods can be used in machine Translation	L6	CO1	PO1,PO2
	b) Design a finite state transducer with E-insertion orthographic rule that parses from surface level “foxes” to lexical level “fox+N+PL” using FST.	L5	CO1	PO1,PO2
12	a) Explain the complexity approaches	L2	CO1	PO1,PO2
	b) Explain the Performances analysis	L2	CO1	PO1,PO2
13	a) Explain the structure documents	L2	CO1	PO1,PO2
	b) What are the issues and challenges of Morphology.	L1	CO1	PO1,PO2
14	a) Explain in detail about Morphological models.	L2	CO1	PO1,PO2
	b) Explain Generative Sequence classification methods.	L2	CO1	PO1,PO2
15	a) Explain Discriminative local classification methods.	L2	CO1	PO1,PO2
	b) Explain the hybrid approaches .	L2	CO1	PO1,PO2
16	a) Explain the two types of morphemes in detail.	L2	CO1	PO1,PO2
	b) Explain how the morphological typology divides languages into	L2	CO1	PO1,PO2



	groups.			
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## UNIT–

### II

#### Syntax Analysis

S.No	Questions	BT	CO	PO
<b>Part –A(ShortAnswerQuestions)</b>				
1	Define Parsing	L1	CO2	PO3,PO4
2	What is CFG.	L1	CO2	PO3,PO4
3	What is Treebank?	L1	CO2	PO3,PO4
4	What are the two approaches to construct treebank?	L1	CO2	PO3,PO4
5	Define Syntax	L1	CO2	PO3,PO4
6	What is dependency Parsing.	L1	CO2	PO3,PO4
7	List the parsing algorithms	L1	CO2	PO3,PO4
8	What are the rules of CNF.	L1	CO2	PO3,PO4
9	Define Multilingual	L1	CO2	PO3,PO4
10	Define Minimum spanning tree.	L1	CO2	PO3,PO4
<b>Part– B(LongAnswerQuestions)</b>				
11	a) Explain the parsing of NLP	L2	CO2	PO3,PO4
	b) Explain the TreeBank method with example	L2	CO2	PO3,PO4
12	a) Construct Shift reduce parsing N-> N 'and' N N->N 'or' N N->'a' 'b' 'c'	L3	CO2	PO3,PO4
	b) Explain data-driven mechanism	L2	CO2	PO3,PO4
13	a) How can we resolve parsing challenges.(CKY)		CO2	PO3,PO4
	b) Explain the Multilingual issues	L2	CO2	PO3,PO4
14	a) Explain the models of ambiguity resolution	L2	CO2	PO3,PO4
	b) Find out the probability for the grammar S ->NP VP [0.80] NP->Det N [0.3] VP->V NP [0.20] V->includes [0.05] Det->the [0.4] Det->a [0.4] N->meal [0.013] N->flight [0.02] for the input string “ The flight includes a meal”		CO2	PO3,PO4
15	a) Explain Minimum spanning tree with an example dependency graph.	L2	CO2	PO3,PO4
	b) Differentiate Generative and discriminative models for parsing.	L4	CO2	PO3,PO4
16	a) Explain Syntax analysis using phrase structure trees.	L2	CO2	PO3,PO4
	b) Explain hyper graphs and chart parsing with an example.	L2	CO2	PO3,PO4

## UNIT–

**III**  
**Semantic Parsing**

S.No	Questions	BT	CO	PO
<b>Part –A(ShortAnswerQuestions)</b>				
1	Define semantic parsing	L1	CO3	PO3,PO4. PO5
2	What is Semantic Interpretation.	L1	CO3	PO3,PO4. PO5
3	List the semantic rules	L1	CO3	PO3,PO4. PO5
4	Define named entity recognition.	L1	CO3	PO3,PO4. PO5
5	Define system paradigm	L1	CO3	PO3,PO4. PO5
6	What is semi supervised learning.	L1	CO3	PO3,PO4. PO5
7	What is wordsense system	L1	CO3	PO3,PO4. PO5
8	What is supervised learning.	L1	CO3	PO3,PO4. PO5
9	Define Unsupervised learning	L1	CO3	PO3,PO4. PO5
10	What is Coreference resolution.	L1	CO3	PO3,PO4. PO5
<b>Part– B(LongAnswerQuestions)</b>				
11	a) Explain in detail about semantic interpretation.	L2	CO3	PO3,PO4. PO5
	b) Explain System paradigms	L2	CO3	PO3,PO4. PO5
12	a) Explain the methods of word sense systems	L2	CO3	PO3,PO4. PO5
	b) Explain the software's associated with semantic interpretation	L2	CO3	PO3,PO4. PO5
13	a) Briefly explain the structural ambiguity.	L2	CO3	PO3,PO4. PO5
	b) What is entity and event resolution.	L1	CO3	PO3,PO4. PO5
14	a) Describe Predicate Argument structure.	L2	CO3	PO3,PO4. PO5
	b) Explain Lesk algorithm.	L2	CO3	PO3,PO4. PO5
15	a) What is Rule based system for word sense disambiguation.	L4	CO3	PO3,PO4. PO5
	b) What is Supervised system for word sense disambiguation.	L1	CO3	PO3,PO4. PO5
16	a) What is UnSupervised system for word sense disambiguation.	L1	CO3	PO3,PO4. PO5
	b) What is the software used for measuring disambiguation.	L1	CO3	PO3,PO4.

				PO5
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## UNIT–

### IV

#### Predicate

S.No	Questions	BT	CO	PO
<b>Part –A(ShortAnswerQuestions)</b>				
1	Define Predicate Logic	L1	CO4	PO3,PO4
2	Give example for predicate logic	L3	CO4	PO3,PO4
3	Define argument structure	L1	CO4	PO3,PO4
4	Define structure management	L1	CO4	PO3,PO4
5	Define representation in NLP	L1	CO4	PO3,PO4
6	Define frame elements.	L1	CO4	PO3,PO4
7	What is Prop Bank.	L1	CO4	PO3,PO4
8	Name the other resource of prop Bank.	L2	CO4	PO3,PO4
9	What is Argument identification.	L1	CO4	PO3,PO4
10	What is Argument classification.	L1	CO4	PO3,PO4
<b>Part– B(LongAnswerQuestions)</b>				
11	a) Explain in detail about predicate logic with examples.	L2	CO4	PO3,PO4
	b) Explain in detail about argument structure in NLP	L2	CO4	PO3,PO4
12	a) Explain in detail about meaning representation system	L2	CO4	PO3,PO4
	b) List and explain the meaning representation	L1	CO4	PO3,PO4
13	a) Describe the resources of predicate argument.	L2	CO4	PO3,PO4
	b) Illustrate the Frame Net of predicate argument structure.	L4	CO4	PO3,PO4
14	a) What are the syntactic representations.	L1	CO4	PO3,PO4
	b) Explain Phrase Structure Grammar.	L2	CO4	PO3,PO4
15	a) Explain the meaning representation systems.	L2	CO4	PO3,PO4
	b) Describe the rule based system in predicate structure.	L2	CO4	PO3,PO4
16	a) Describe the supervised system in predicate structure.	L2	CO4	PO3,PO4
	b) What is ATIS and Communicator.	L1	CO4	PO3,PO4

## UNIT–

### V

#### Disclosure processing

S.No	Questions	BT	CO	PO
<b>Part –A(ShortAnswerQuestions)</b>				
1	Define cohension	L1	CO5	PO3,PO5
2	Define reference resolution	L1	CO5	PO3,PO5
3	Define discourse cohension	L1	CO5	PO3,PO5
4	Define modeling	L1	CO5	PO3,PO5
5	What do you meant by crosslingual	L1	CO5	PO3,PO5
6	What is the formula for probability of n-Gram model.	L1	CO5	PO3,PO5
7	What is Baye'srule.	L1	CO5	PO3,PO5
8	What is the need of language model adaptation.	L1	CO5	PO3,PO5



f.	List the semantic rules	3	L1	CO3	PO3,PO4, PO5
g.	Define argument structure	3	L1	CO4	PO3,PO4
h.	Define structure management	3	L1	CO4	PO3,PO4
i.	Define reference resolution	3	L1	CO5	PO3,PO5
j.	What is the need of language model adaptation	3	L1	CO5	PO3,PO5

**Part-B** **50 Marks)**  
**Answer any five questions All Questions**  
**carry equal Marks**

Q.No	Question	M	BL	CO	PO
<b>UNIT-I</b>					
2)	a. Explain the complexity approaches.	5	L2	CO1	PO1,PO2
	b. Explain the Performances analysis	5	L2	CO1	PO1,PO2
<b>OR</b>					
3)	a. Explain in detail about Morphological models.	5	L3	CO1	PO1,PO2
	b. Explain Generative Sequence classification methods	5	L2	CO1	PO1,PO2
<b>UNIT-II</b>					
4)	a. Construct Shift reduce parsing N-> N 'and' N N->N 'or' N N->'a' 'b' 'c'	5	L2	CO2	PO3,PO4
	b. Explain data-driven mechanism	5	L2	CO2	PO3,PO4
<b>OR</b>					
5)	a. Explain the models of ambiguity resolution	5	L3	CO2	PO3,PO4
	b. Find out the probability for the grammar S ->NP VP [0.80] NP->Det N [0.3] VP->V NP [0.20] V->includes [0.05] Det->the [0.4] Det->a [0.4] N->meal [0.013] N->flight [0.02] for the input string “ The flight includes a meal”	5	L3	CO2	PO3,PO4
<b>UNIT-III</b>					
6)	a. Describe Predicate Argument structure.	5	L2	CO3	PO3,PO4 .PO5
	b. Explain Lesk algorithm.	5	L2	CO3	PO3,PO4 .PO5
<b>OR</b>					
7)	a. What is Rule based system for word sense disambiguation.	5	L1	CO3	PO3,PO4 .PO5
	b. What is Supervised system for word sense disambiguation.	5	L1	CO3	PO3,PO4 .PO5

<b>UNIT-IV</b>						
8)	a.	What are the syntactic representations.	5	L1	CO4	PO3,PO4
	b.	Explain Phrase Structure Grammar.	5	L4	CO4	PO3,PO4
<b>OR</b>						
9)	a.	Explain the meaning representation systems	5	L3	CO4	PO3,PO4
	b.	Describe the rule based system in predicate structure.	5	L4	CO4	PO3,PO4
<b>UNIT-V</b>						
10)	a.	Discuss about language model adaptation	5	L2	CO5	PO3,PO5
	b.	Illustrate spoken versus written languages	5	L4	CO5	PO3,PO5
<b>OR</b>						
11)	a.	Describe multilingual language modeling	5	L2	CO5	PO3,PO5
	b.	Describe cross lingual language modeling.	5	L2	CO5	PO3,PO5

**M** – Marks      **CO** – Course Outcomes      **PO** – Program Outcomes

**BL** – Bloom's Taxonomy Levels (**L1**–Remembering, **L2**–Understanding, **L3**–Applying,**L4**–Analyzing, **L5**–Evaluating, **L6**–Creating)

## 12.ASSIGNMENTS

### ASSIGNMENT :1

1	a)	Explain the complexity approaches
	b)	Explain the Performances analysis
2	a)	Explain the parsing of NLP
	b)	Explain the TreeBank method with example
3	a)	Explain in detail about semantic interpretation.

### ASSIGNMENT :2

1	a)	Explain System paradigms
2	a)	Explain in detail about predicate logic with examples.
	b)	Explain in detail about argument structure in NLP
3	a)	Explain in detail about reference resolution
	b)	Explain in detail about discourse of cohesion