



Paper ID : 250259

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Subject Code: KOE088

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BTECH
(SEM VIII) THEORY EXAMINATION 2024-25
NATURAL LANGUAGE PROCESSING

TIME: 3 HRS**M.MARKS: 100****Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

Q No.	Question	CO	Level
a.	What is Natural Language Processing (NLP)? Write the applications of NLP.	1	K2
b.	Write the phases of Natural Language Processing.	1	K2
c.	Write the key steps used for normalizing textual data in NLP.	1	K2
d.	What are the techniques used for text representation and text embedding in NLP.	1	K1
e.	Provide an example of how a regular expression can be used in NLP for text pattern matching.	1	K3
f.	Differentiate between NLU and NLP.	1	K2
g.	What is natural language understanding (NLU)? Write the applications of NLU.	1	K2
h.	Write some challenges of NLU.	1	K2
i.	What is Pre-Trained Language Models? Write deep learning techniques used for NLP.	1	K2
j.	How does natural language understanding work?	1	K4

SECTION B**2. Attempt any three of the following:****10 x 3 = 30**

Q No.	Question	CO	Level
a.	What do you mean by knowledge representation? Discuss about the semantics and knowledge representation in NLP.	2	K2
b.	Define lexical semantics and give an example of how it influences sentence meaning.	2	K4
c.	What do you mean by semantics? Discuss about the components and elements of semantic analysis.	2	K2
d.	What are the basic units of semantic system? Discuss about the techniques used for semantic analysis.	2	K2
e.	What is Machine Translation (MT)? What are the components of MT? write some applications of MT.	2	K3

SECTION C**3. Attempt any one part of the following:****10 x 1 = 10**

Q No.	Question	CO	Level
a.	What is Augmented Grammars? Why use Augmented Grammars in NLP? Discuss in detail.	3	K2, K4



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b.	What is Parsing? Differentiate between Top Down and Bottom Up parsing. Write the advantages and disadvantages of Top Down and Bottom Up parsing used in NLP.	3	K2,K3
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4. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	What are Augmented Transition Networks? How ATNs work? Write advantages and applications of ATN.	3	K2, K4
b.	What is morphological analysis? What are the techniques used in morphological analysis for NLP? Write importance and applications of morphological analysis.	3	K2, K4

5. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	What is Context-Free Grammars (CFGs)? Discuss about the different types of grammars used in NLP.	4	K2,K3
b.	What is an Auxiliary Verb? Discuss about the different types of Auxiliary Verbs. How to use Auxiliary Verbs explain with the help of an example?	4	K2, K4

6. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	What do you mean by ambiguity and uncertainty in human language? Discuss about the major challenges of NLP.	4	K2
b.	What are the statistics used for NLP? Discuss about the various Neural Network models used for NLP.	5	K3, K4

7. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	What are Probabilistic Models? What are the different types of Probabilistic Models? Write importance and applications of Probabilistic Models.	5	K2, K4
b.	Define Probabilistic Context Free Grammar (PCFG). Write CKY parsing algorithm. How to calculate the probability of a parse tree in PCFG?	5	K2,K5,K6