

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, December 2020

Course: Natural Language Processing
Program: M. Tech.
Course Code: CSAI 7006

Semester: II
Time 03 hrs.
Max. Marks: 100

SECTION A

- 1. Each Question will carry 5 Marks**
- 2. Instruction: Answer the question in points only.**

S. No.	Question	CO
Q 1	'Rice Flies like sand', which types of parsing can be possible? i. S -> NP VP, NP->V, VP->V VP and S->NP VP, NP->N, VP->V NP ii. S->NP VP, NP->V, VP->N NP and S->NP VP, NP->N, VP->VP NP iii. S->NP VP, NP->VP and S->NP VP, NP->N PP iv. S->NP VP, NP->N, NP->N, VP->V NP, NP->N and S->NP VP, NP->N, VP->V PP, PP-> P NP	CO1
Q2	Log function is used in i. MF ii. IDF iii. TF iv. CF	CO2
Q3	Which phase of NLP finds meaning of sentences i. syntax analysis ii. semantic analysis iii. phonetic knowledge iv. pragmatic knowledge	CO1
Q4	'UPES is the best University in Dehradun', which is referring expression generation? i. UPES ii. Best iii. University iv. Dehradun	CO3
Q5	In which parser, set of symbols are matched to right side of rules i. Top-down parser ii. Tree parser iii. stack parser iv. bottom-up parser	CO2
Q6	What is formula for calculating Cosine Distance? i. $(A / B) / A B $ ii. $(A \cdot B) / A B $ iii. $(A-B) / A B $ iv. $(A+B) / A B $	CO1

SECTION B

1. Each question will carry 10 marks
2. Instruction: Write short / brief notes

Q 7	Describe the pre-processing steps of NLP. What is the used of these pre-processing steps? Explain with help of example.	CO1

Q 8	What is Natural Language Processing (NLP)? Describe some application of NLP.	CO2
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Q 9	<p>Given $G = (N, T, P, S)$ with $N = \{E\}$, $S = E$, $T = \{id, +, *, c\}$</p> <p style="text-align: center;">P: 1. $E \rightarrow E + E$ and 2. $E \rightarrow E * E$ 3. $E \rightarrow (E)$ 4. $E \rightarrow id$</p> <p>Obtain the derivation tree for $id * id + id$ and $(id + id) * id$</p>	CO3
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Q 10	What is the difference between count vectorization, TF-IDF vectorization and Word2Vec? Also Explain different between word2vec and Glove with the help of example.	CO2
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Q 11	<p>What is the order of steps in natural language understanding? Describe the comparison of natural language understanding and natural language generation.</p> <p style="text-align: center;">OR</p> <p>D1 : UPES is Best University in Uttarakhand and this university offers B.Tech course. D2 : Reliance share price D3 : Cricket is the most popular sport</p> <p>Q : Which is best University , What is TF/IDF values of UPES and University?</p>	CO3
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Section C

1. Each Question carries 20 Marks.
2. Instruction: Write long answer.

Q12	<p>Describe the following terms with help of flowchart and also explain the techniques involves to solve the problem:</p> <ol style="list-style-type: none"> 1. Machine translation 2. Sentiment classification 3. Community Question Answering. <p style="text-align: center;">--OR--</p> <p>Consider the following productions:</p> <p>$S \rightarrow NP VP$ $NP \rightarrow NP PP$ $NP \rightarrow sushi$ $NP \rightarrow I$ $NP \rightarrow chopsticks$ $NP \rightarrow you$ $VP \rightarrow VP PP$ $VP \rightarrow Verb NP$ $Verb \rightarrow eat$</p>	CO4
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PP → Prep NP

Prep → with

Where;

NP – noun phrase

VP –verb phrase

PP -preposition phrase.

- a) Use the CYK parsing algorithm to find if the sentence "I eat sushi with chopsticks with you" belongs to the above grammar.

Explain the CYK algorithm.