Name: Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Natural Language Processing **Semester: 2nd**
Program: M.Tech (CSE) **Time : 03 hrs.**
Course Code: CSAI 7006 **Max. Marks: 100**

Instructions: All questions of Section A are compulsory. In Section B and C, one question is having internal choice. All other questions are compulsory.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	How aggregation and lexicalization planners are used in Natural Language Generation?	**4**	**CO2**
Q 2	'I went to Bank', which of the following ambiguity is present in this sentence?	**4**	**CO1**
Q 3	"He was working on very innovative project', what is output after stemming and lemmatization on this sentence?	**4**	**CO1**
Q 4	Define word-based and phrase-based statistical approaches for machine translation?	**4**	**CO3**
Q 5	Describe different distance measures used for finding similarity between documents in Vector Space Model?	**4**	**CO4**
SECTION B **(4Qx10M= 40 Marks)**			
Q 6	What are Synsets in WordNet and how it computes the synonyms of terms used in sentence? How wup similarity is calculated between nouns?	**10**	**CO4**
Q 7	Explain lexical, syntax, semantic and pragmatic analysis for following sentence "This company is the best in software domain".	**10**	**CO1**
Q 8	Which models are used in neural-based machine translation?	**10**	**CO3**
Q 9	In Natural Language Generation, elaborate document planning, micro planning and surface realization using suitable example. OR How unstructured/structured data can be represented effectively using Natural Language Generation? Explain by the use of financial news automation.	**10**	**CO2**
SECTION-C **(2Qx20M=40 Marks)**			

Q 10	Consider the following productions: S ⟶ NP VP NP ⟶ NP PP NP ⟶ sushi NP ⟶ I NP ⟶ chopsticks NP ⟶ you VP ⟶ VP PP VP ⟶ Verb NP Verb ⟶ eat 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. b) Explain the CYK algorithm.	**20**	**CO1**
Q 11	D1= “Cricket match between India and Australia was very close match” D2= “ NIFTY 50 is stock index” D3= “In India, several reputed Universities are opened now” Q= “What are the names of stock indexes in India” Find the similarity between query and document corpus using TF/IDF and rank the similarity in descending order. OR Use the sentence “Time flies like an arrow” and find c-structure and f-structure. How LFG framework is used for knowledge representation.	**20**	**CO4**