CBCS SCHEME

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17CS741

Seventh Semester B.E. Degree Examination, July/August 2021
Natural Language Processing

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full questions..*

1 a. What are the major challenges of Natural Language Processing? Explain in details. **(10 Marks)**

b. Explain the difference between Grammar based language model and statistical based Language model. **(10 Marks)**

2 What are the different Natural Language Applications? Explain, how NLP is used in these applications? **(20 Marks)**

3 a. Write a regular expression for the following :
i) To validate the general email address for educational institutions of the form abc@xyz.ac.in.
ii) To match the floating points numbers. **(10 Marks)**

b. Explain Context Free Grammar with an example. **(10 Marks)**

4 a. Draw a deterministic finite automata which either starts with 01 or end with 01 of a string containing 0, 1 in it. **(05 Marks)**

b. Draw a non-deterministic finite automata, which either starts with 01 or end with 01 of a string containing 0, 1 in it. **(05 Marks)**

c. What is Morphological parsing Techniques? Explain with an example. **(10 Marks)**

5 a. Analyze the sentence "State Bank of India is located just near the bank of river Ganger". Using your understanding on semantic analysis. **(08 Marks)**

b. Analyze the sentence "This tree is illustrating the dependency relation" Using your understanding on synthetic Analysis. **(12 Marks)**

6 a. i) Apply unigram bigram, and trigram models for the below sentences :
a) Manchester United is a club in English priemere league
b) I am looking for a good place to eat Breakfast.
c) When are we going to be free from COVID
d) Who is going to be a president of Australia
e) Syntactic analysis is a challenging process in NLP **(15 Marks)**

b. ii) Explain parts of speech tagging with an example. **(05 Marks)**

7 a. What is the important of knowledge Roles and Domain knowledge? **(05 Marks)**

b. Explain how to generate text reports using annotation. **(05 Marks)**

c. Evaluate self explanation in iSTART using word matching, LSA and topic models. **(10 Marks)**

8 What are textual signatures? Explain how to identify text type using latent semantic Analysis to measure the cohesion of Text structures. **(20 Marks)**

9 Explain in details the classical model of information retrieval.
i) Boolean Model **(05 Marks)**
ii) Vector Space Model. **(15 Marks)**

10 Explain in details of the classical model of information Retrieval.
i) Set model **(05 Marks)**
ii) Probabilistic model **(15 Marks)**

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