Exam

1.What is Parsing in the context of NLP?

Ans: Parsing in NLP is the process of determining the syntactic structure of a text by analyzing its constituent words based on an underlying grammar (of the language).

See this example grammar below, where each line indicates a rule of the grammar to be applied to an example sentence “Tom ate an apple”.

Proper noun= Tom
Noun=apple
Verb=ate
Determiner=an

2.What is Regular Grammar?

The purpose of a regular grammar is to specify how to form grammatically correct strings in the language the grammar represents

A regular grammar is a mathematical object, G, with four components, G = (N, Σ, P, S), where.

N is a nonempty, finite set of nonterminal symbols,

Σ is a finite set of terminal symbols , or alphabet, symbols,

P is a set of grammar rules, each of one having one of the forms.

$A \rightarrow aB$.

$A \rightarrow a$

$A \rightarrow \varepsilon$, for $A, B \in N$, $a \in \Sigma$, and ε the empty string, and

$S \in N$ is the start symbol

3.What is the difference between NLG and NLU?

Natural Language Understanding (NLU)	**Natural Language Generation (NLG)**
NLU is the process of reading and interpreting language.	NLG is the process of writing or generating language.
It produces non-linguistic outputs from natural language inputs.	It produces constructing natural language outputs from non-linguistic inputs.

4.What is Pragmatic Analysis?

Pragmatic Analysis helps you to discover the intended effect by applying a set of rules that characterize cooperative dialogues. It deals with deriving meaningful use of language in various situations.

For Example: "Open the door" is interpreted as a request instead of an order.

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5. What are unigrams, bigrams, trigrams, and n-grams in NLP?

n-grams in NLP are basically a set of co-occurring words within a given window and when computing the n-grams you typically move one word forward (although you can move X words forward in more advanced scenarios).

For example, for the sentence “The cow jumps over the moon”. If N=2 (known as bigrams), then the 2 grams would be:

- the cow
- cow jumps
- jumps over
- over the
- the moon

6.What are the steps involved in solving an NLP problem?

- Step 1: Import Libraries
- Step 1: Gather the data.
- Step 2: Clean the data.
- Step 3: Find a good data representation.
- Step 4: Classification of data.
- Step 5: Inspection of data.
- Step 6: Accounting for vocabulary structure- o help our model focus more on meaningful words
- Step 7: Leveraging semantics.
- Step 8: Leveraging syntax using end-to-end approaches.

7.What is precision and recall and f1 score?

Precision: It tells how much of the system summary was in fact needed or relevant

Recall: It refers how much of the reference summary and the system summary is overlapping.

f1 score: F1 Score is the weighted average of Precision and Recall. In other words, an F1-score (from 0 to 9, 0 being lowest and 9 being the highest) is a mean of an individual's performance, based on two factors i.e. precision and recall.

8.How to tokenize a sentence using the nltk package?
Ans:

- Import the “word_tokenize” from the “nltk. tokenize”.
- Load the text into a variable.
- Use the “word_tokenize” function for the variable.
- Read the tokenization result.

  e.g. import nltk
  from nltk import word_tokenize()
  s=”I am a student”
  sentence=nltk.tokenize.word_tokenize(s)
  print(sentence)

9.Explain Stemming with the help of an example?
Ans:
Stemming is used to normalize words into its base form or root form.
For Example**,** intelligence, intelligent, and intelligently, all these words are originated with a single root word "intelligen." In English, the word "intelligen" do not have any meaning.

10.Explain Lemmatization with the help of an example?

Ans: Lemmatization is quite similar to the Stamming. The main difference between Stemming and lemmatization is that it produces the root word, which has a meaning.

For example: In lemmatization, the words intelligence, intelligent, and intelligently has a root word intelligent, which has a meaning.

11.What is Parts-of-speech Tagging?

Ans: It is a process of converting a sentence to forms – list of words, list of tuples (where each tuple is having a form *(word, tag)*). The tag in case of is a part-of-speech tag, and signifies whether the word is a noun, adjective, verb, and so on.

Tagging
tagging.tag(['Hello', 'Geeks'])
[('Hello', 'NN'), ('Geeks', 'NN')]