Exam Date & Time: 05-Sep-2022 (02:00 PM - 03:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

B.Tech Vth Semester First Sessional Examination September 2022

NATURAL LANGUAGE PROCESSING [DSE 3155]

Marks: 15 **Duration: 60 mins.**

MCQ

Answer all the questions. Section Duration: 20 mins

1) Which of the following is not a templatic morphology? (0.5)

1) Vowel Modification 2) Internal Modification 3) External Modification 4) Consonant Modification

2) Capable Vs Capability is an example of _____ morphology (0.5)

1) Derivational 2) Inflectional 3) Concatenative 4) Non-Concatenative

3) In the English language, derivational morphemes can be? (0.5)

1) Prefixes,infixes,suffixes 2) Prefixes only 3) Suffixes only 4) Prefixes and suffixes

4) How many stems are there in the following list? (0.5)

Song bind caught oxen live bound life

1) 2 2) 1 3) 0 4) 3

5) The appropriate morphological parsed output for the inputs met and lit is _____ . (0.5)

1) meet + V + PAST, light +V+PAST 2) met + V + PAST-PART, lit +V+PAST 3) meet + V + PAST, lit +V+PAST_PART 4) meet + V + PAST-PART, light +V+PAST

6) Select an appropriate string for the language defined as follows: (0.5)

The set of strings 0's and 1's of the form

$w\bar{w}$

,where

$\overline{w}$

is formed from *w* by replacing all 0's by 1's and vice-versa

1) 010010101101 2) 010010001101 3) 0100100011010 4) 0100010010001101

7) Select the appropriate regular expression for recognizing a general street address which may be of the form(but not exactly) **123A Main St.** or **123A Main Street**. or **123A Main Rd.** or **123A Main Road.** . (0.5)

1) / [0-9]+[A-Z]? [A-Z][a-z]*([A-Z][a-z]*)* (Street|St. |Road|Rd.)/

2) / [0-9]?[A-Z]? [A-Z][a-z]+ ([A-Z][a-z]*)* (Street|St. |Road|Rd.)/

3) / [0-9]+[A-Z]? [A-Z][a-z]*([A-Z][a-z]*)* (Street|St. |Road|Rd.)/

4) / [0-9]+[A-Z]? [A-Z][a-z]*([A-Z][a-z]*). (Street|St. |Road|Rd.)/

8) If the regular expression is **r = (aa)*(bb)*b**.What would be **L(r)**? (0.5)

1) $L(r)=\{a^n b^{2m} b : n,m \geq 0\}$

2) $L(r)=\{a^{2n} b^{2m} b : n,m \geq 0\}$

3) $L(r)=\{a^{2n} b^m b : n,m \geq 0\}$

4) $L(r)=\{a^n b^m b : n,m \geq 0\}$

9) "The Professor said on Monday he would give an exam"contains which type of ambiguity? (0.5)

1) Syntactic 2) Semantic 3) Lexical 4) No Ambiguity

10) Which would definitely be rejected by the English Semantic Analyzer? (0.5)

1)	Hot Water		2)	Cold Icecream		3)	Colorless Green		4)	White Milk	

DESCRIPTIVE

Answer all the questions. Section Duration: 40 mins

11) "If you eat all of that food, it will make you bigger!"

The above statement will be processed in which phase of NLP?Justify. . (2)

12) Explain the Porter-Stemmer rule format quoting the example for the following conditions:

i) Measure of the word (2)

ii) Stem ending with double consonant .

13) Design a DFA with $\sum = \{a, b\}$ that accepts all strings of a's and b's consisting of an even number of a's, followed by at least one b, followed by zero or an odd number of a's.Also (3)

construct a transition table for the designed DFA.

14) Explain the process of generating or parsing the plural form of the string **"Blitz"** with FST lexicon and orthographic rules**.** (3)

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