

B.TECH. SEM -VII INFO. TECH. 2014 COURSE (CBCS) :

SUMMER - 2018

SUBJECT: ELECTIVE – III: NATURAL LANGUAGE PROCESSING

Day: **Thursday**
Date: **24/05/2018**

S-2018-2511

Time: **02.30 PM TO 05.30 PM**
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data, if necessary.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.

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- Q.1** Explain Unigram language model with example. [10]
OR
- Q.1** What is statistical language model? Compare it with N-gram model [10]
- Q.2** Describe the language denoted by following regular expression: [10]
i) $a(a|b)^*a$ ii) $((\epsilon|a)b^*)^*$
iii) $(a|b)^*a(ab)(a|b)$ iv) $a^*b a^*ba^*ba$
OR
- Q.2** Convert the following regular expression to deterministic finite automata [10]
i) $((\epsilon|a)b^*)^*$ ii) $(a|b)^*abb(a|b)^*$
- Q.3** What is morphology? What are morphemes? Explain NLP applications using morphology technique. [10]
OR
- Q.3** Find one tagging error in each of the following sentences that are tagged with the Penn Treebank tag sets: [10]
a) I / PRP need / VBP a / DT flight / NN from / IN Atalanta / NN.
b) Does / VBZ this / DT flight / NN serve / VB dinner / NN.
c) I / PRP have / VB a / DT friend / NN living / VBG in / IN Denver / NNP.
d) Can / VBP you / PRP list / VB the / DT nonstop / JJ afternoon / NN flights / NNS.
- Q.4** a) How regular grammar parsing is carried out [06]
b) What is shift reduce parser? [04]
OR
- Q.4** Define context free grammar. Consider following context free grammar: [10]
 $S \rightarrow SS + | SS^* / a$.
And the string $aa + a^*$
i) Give left most derivation
ii) Give right most derivation
iii) Give parse tree for string.
- Q.5** How spell checking, summarization is carried out as application of NLP. [10]
OR
- Q.5** Explain following terms: Homonymy, Polysemy and Synonymy. [10]
- Q.6** Explain element in balanced corpus. [10]
OR
- Q.6** Write note on Semantic web technologies. [10]

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