Exam. Of (Humanity 3)

For 3rd year Grade Electronics and Communications Dept. Students

Answer ALL the following Questions:

1.a. Compare between compiler and interpreter.

1.b. DFA may take more memory space than NFA. Explain

2. a. Write regular expressions for the following:

(1) Keywords

(2) Variable names.

(3) Float numbers

2 .b. Extend the description of real numbers to include numbers in scientific notation:

$$-2.3E+17$$

3. a. Draw the NFA diagram for the following regular expressions:

(1) $(a/b)^*abb$

(2) $aa^*/bb?$

(3) $(a^+/c^+)b^+$

3. b Given the regular expression $a^*(a/b)$ aa ,Construct the equivalent NFA then convert it to DFA.

4.a. Minimize the DFA derived in 3.b.

b. Consider the following grammar:

$S \longrightarrow (A) \qquad A \longrightarrow CB$

$B \longrightarrow ;a/ \qquad C \longrightarrow a/S$

Give the left most derivation for the sentence (a;a)

5.a Remove the left recursion from the following grammar G:

$S \longrightarrow Sa/Bl$

$L \longrightarrow ScL/Sd/a$

5.b. Using: $S \longrightarrow E+S/E$, $E \longrightarrow number/(S)/-S$

Do the right most derivation of: $1+ (2+ -(3+4)) + 5$

Good Luck
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