CSIS Department;

1st Sem 2020-21; PPL (CSF301) Test-2

Date: 14-10-2020 Wt: 15% Total marks: 30marks (30 mins)

Mode: Using Google Forms through Google Classroom

Q1. Look at the following select construct with post-condition. [5 marks]

```
if (x>y)
   y=2*x+1;
else
    y=3*x+1;
```

{y>3}

Which of the following is the weakest pre-condition of the above select construct?

A. {**x > (4/3)**}
B. {x < (3/4)}
C. {x> 1}
D. {x<1}
E. {x<(4/3)}

Q2. The Operational Semantics is a method used to prove the correctness of the programs.

[True / **False**] [1 mark]

Q3. In LL parsing, LL indicates that it is left-to-left scanning of input. [true/ **False**] [1mark]

Q4. Whenever the Syntax analyser (parser) calls the lexical analyser, the lexical analyser returns to the caller- [2 marks]

A. One line read from the input
B. a lexeme along with its token
C. a pair containing the token and its associated code
D. only the corresponding token of the lexeme recognized

Q5. A grammar G has rules – { S→rtv; S→ rAt; S→ rtA; A → aA|a}.

Note: the semicolon ';' is a separator between rules and '|' is for alternation, they are not part of the grammar.

Give the equivalent grammar G' after performing left-factoring on G. [5 marks]

Q6. A grammar G has rules – { S→ SaA; S→ Scb; S→ Sb; S → a | c; A→bA|b}.

Note: the semicolon ';' is a separator between rules and '|' is for alternation, they are not part of the grammar.

Give the equivalent grammar G' after eliminating left-recursion from G by using the guidelines learnt in the class. [6 marks]

Q7. A grammar G has rules – { S→ aABb; A→ aA|c; B→ bB|d;}.

Note: the semicolon ';' is a separator between rules and '|' is for alternation, they are not part of the grammar.

Which of the following options indicate the *handle* (underlined substring part) of the right-sentential form ***aAbbbbBb*** [5 marks]

A. ***aAbbbbBb***
B. aAbbbbBb
C. ***aAbbbbBb***
D. ***aAbbbbBb***
E. ***aAbbbbBb***

Q8. For the grammar G={S→aBA; A→aA | c ; B→bB | b}, for the input string ***abbac***, in bottom-up parsing with a stack, after consuming ***ab*** (first two symbols), the stack status is ***#ab*** (#indicates the bottom of stack) now the remaining input is ***bac*** and the next input symbol is ***b*** (i.e., the second occurrence of ***b***) . Now should we go with shifting next input symbol ***b*** on to stack or reducing ***b*** at the top of stack with ***B***? Which is the right option?
Note: the semicolon ';' is a separator between rules and '|' is for alternation, they are not part of the grammar. [5 marks]

A. Shifting the next input symbol ***b*** on the stack, making the stack status ***#abb***
B. Reducing ***b*** at the top of the stack to ***B*** making the staff stats ***#bB***

****END***