Answer all questions.

1. Use Master Theorem to estimate the complexity of the following recurrence relation.

$$T(n) = 6T(n/3) + n^2 \log n$$

(3 marks)

2. Use Master Theorem to estimate the complexity of the following recurrence relation.

$$T(n) = 3\,T(n/5) + n^2 \log n$$

(3 marks)

3. Transform the following infix expression to its postfix form: (4 marks)

(A+ B)* C – D/ E+F.

Trace out the steps in a table specifying the input symbol, position of the stack and the position of the output expression at every step.