# Homework 6 Reverse Polish Notation

1. Convert the following to Reverse Polish Notation.

(a) 3 / (9 + 5)

(b) (g / h^i) + (h \* g)

(c) 7 \* x + 8 \* y + 4

(d) (a + b) / (c – d)

(e) (a + b) \* c / (b + c)

[5]

1. (a) Create a binary tree for y = (3 \* x) + 9 / (x + y), with the first + sign at the root. [3]

(b) State the output of a pre-order traversal (Polish Notation, prefix) [1]

(c) State the output of a post-order traversal (Reverse Polish Notation, post-fix) [1]

3. Evaluate this RPN expression, showing the state of the stack for each step.

* 1. 5 2 \* 3 4 \* +

[5]

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| **Stack** | **Pop, execute, push** | **5 2 \* 3 4 \* +** |
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[Total 15 Marks]