BSc (Hons) in Information Technology

Year 1

Data Structures and Algorithms – IT1170

Tutorial 1 – Algorithm Analysis

Question 1

Analyze the running time of the following program fragments assuming a RAM model of computation. State any assumptions or definitions you make.

```
b)
a)
                                                     i = 0
i = 0
while(i \le 4)
                                                     while(i \le 20)
        print(i)
                                                            print(i)
        i = i + 1
                                                            i = i + 8
c )
                                                   d)
                                                                     i = 0
             i = 0
                                                                     j = 1
             while(i < 4)
                                                                     while(i < 4)
                     j = 1
                                                                            print(i)
                            while(j \le 3)
                                                                                    while(j \le 3)
                                    print(j)
                                                                                            print(j)
                                    j = j + 1
                                                                                            j = j + 1
                    i = i + 1
```

i = i + 1

```
e ) j = 1 while (j \le 10) j = j + 1 a = 1 while (a \le 3) a = a + 1
```