PEMBAHASAN UTS ASA 2017

```
II) Function SamaMatriks (A, B : matriks; n : integer) -> boolean {
    I, j : integer
    For I = 1 to n {
        For j = 1 to n {
            If A[i,j] != B[i,j] {
                Retrurn false
            }
        }
    }
    Return true
}
```

II) Algoritma pwncarian beruntun

```
Procedure PencarianBeruntun (input a1, a2, …, an : integer, x : integer,
output idx : integer) {
    I : integer
    Ketemu : boolean
    I = 1
    Ketemu = false
    While (I <= n) and (!ketemu) {
        If (a[i] = x) {
            ketemu = true
        } else {
            i = I++
        }
    }
    If ketemu {
        Idx = 1
    } else {
        Idx = 0
    }
}
```

SOAL 1

A. I) terbaik : matriks berukuran 1 x 1, terburuk : semua elemen matriks
A = elemen matriks B
II) terbaik : nilai a1 adalah x, terburuk : tidak ada nilai a[i]=x

B. I) terbaik : 2, terburuk : n^2
II) terbaik : 4, terburuk : n + 4

C. I) kompleksitas polinomial, ii) kompleksitas linear

SOAL 2

A. T(n) = 2n + 120 = O(n)
n>=1, 2n + 120 < 2n + 120n = 122n
C = 122, n0 = 1

B. T(n) = 3n^3 + 6n^2 + n + 8 = O(n^3)
n >= 1, T(n) = 3n^3 + 6n^2 + n + 8 < 3n^2 + 6n^3 + 9n^3 = 18n^3
C = 18, no = 1

C. T(n) = log n^5 = O(log n)
n>=1, 5 log n <= 6 log n
C = 6, n0 = 1

D. T(n) = 6.2^n + n^2 = O(2^n)
n >= 1, 6.2^n + n^2 <= 6.2^n + 7.2^n = 13.2^n
C = 13, no = 1

E. T(n) = 10 log 3^n = O(n)
n >= 1, n 10log3 <= 4n
C = 4, n0 = 1

SOAL 3

a. T(n) = 5n^3 + 6n^2 log n
n>=1, 5n^3 + 6n^2 log n <= 5n^3 + 6n^3 = 11n^3
C = 11, n0 = 1

T(n) = O(n^3)
n >= 1, 5n^3 + 6n^2 log n >= 5n^3, C = 5
T(n) = Ω(n^3)
T(n) = ɵ(n^3)

b. T(n) = 3n^4 + 6n^3 + 18n + 2
n >= 1, 3n^4 + 6n^3 + 18n + 2 <= 3n^4 + 6n^4 + 10n^4 + 2n^4 = 20n^4
C = 20, n0 = 1

SOAL 4

A. Relasi Rekurens :
T(n) = 0 ,n = 0
T(n) = T(n-1) + 1 ,n > 0

B. Kompleksitas waktu algoritma
T(n) = T(n-1) + 1 -> T(n-1) = T(n-2) + 1
= [T(n-2) + 1] + 1 = T(n-2) + 2 -> T(n-2) = T(n-3) + 1
…
…
= T(0) + n

-> T(n) + n == O(n)