

Resit Exam – Model Answer

Exercise 1: (8 pts)

	Algorithm ex1;
0.5	Var n,s,i,k:integer;
	Begin
0.5	Read(n);
0.5	If n≤0 Then write("Input error")
0.25	Else Begin
0.5	s ← 0;
0.5	i ← 1;
0.5	k ← 0;
1	while s < n Do
	Begin
0.75	k ← k + 1;
0.75	s ← s + i;
0.75	i ← i + 2;
	End;
1	If s>n Then k ← k - 1;
0.5	Write("IPSR(",n, " = ", k);
	End;
	End.

Exercise 2: (6.5 pts)

	Algorithm ex2;
0.75	Const n = 100;
	Type tab = Array[n] of integer;
	Var t:tab; i,j,nb:integer;
	Begin
0.75	For i ← 0 To n-1 Do
0.5	Read(t[i];
1	nb ← 0;
0.75	For i ← 0 To n-1 Do
0.75	For j ← i+1 To n-1 Do
1.5	If t[i] = t[j] Then nb ← nb + 1;
0.5	Write(nb);
	End.

Exercise 3: (5.5 pts)

1) Type Date = record
Begin
day: Integer;
month: Integer;
year: Integer;
end;

(0.5)

2) Type Student = record
Begin
regNum: Integer;
lastName: String;
firstName: String;
dateOfBirth: Date;
end;

(1)

3) Type SetOfStudents = array[300] of Student;

(0.5)

4) Type Teacher = record
Begin
SSN: String;
lastName: String;
firstName: String;
dateOfBirth: Date;
specialty: String;
end;

(1)

5) Type GroupOfStudents = record
Begin
name: String;
level: String;
specialty: String;
classroom: String;
students: SetOfStudents;
responsible: Teacher;
end;

(1)

6) Type SetOfGroups = array[20] of GroupOfStudents;

(0.5)

7) Type School = record
Begin
name: String;
address: String;
director: String;
nbClassrooms: Integer;
groups: SetOfGroups;
teachers: array[n] of Teacher;
end;

(1)
