University of 08 Mai 1945 – Guelma

Faculty of MISM **Date: 21/01/2023**
Department of Mathematics **Duration : 2h00**
First year LMD **Semester 1**

Final Exam – Solution Key

Exercise 1: (5 pts)

	Algorithm ex1 ;
0.75	Var Q,nbPP,PM:integer;UP,tot:real;
	//P = 1 for cash and 2 for credit card
	Begin
0.5	Read(UP,Q,nbPP,PM);
0.5	If UP≤0 or Q≤0 or nbPP<0 or (PM≠1 and PM≠2) Then write("input error")
0.25	Else begin
0.75	If Q>50 or nbPP≥2 then Tot ← (UP*Q)-(UP*Q)*15/100
0.75	Else if nbPP=1 and Q≥20 and Q≤50 then Tot ← (UP*Q)-(UP*Q)*7/100
0.5	Else Tot ← (UP*Q);
0.75	If PM = 2 Then Tot ← Tot - 500;
0.25	Write(Tot);
	End;
	End.

Exercise 2: (5 pts)

	Algorithm ex2 ;
0.75	Var N,i,j,a,S:integer;
	Begin
0.25	Read(N);
0.5	If N≤0 Then write("input error")
0.25	Else begin
0.25	S ← 0;
0.5	For i ← 1 To N Do
0.25	Begin
0.25	a ← 0;
0.75	For j ← i To N Do
0.5	a ← a + j;
0.5	S ← S + a;
	End;
0.25	Write(S);
	End;
	End.

Exercise 3: (5 pts)

	Algorithm ex3 ;
1	Const n = 10; Type Tab = Array[n] of real; Var T:Tab; i:integer; min:real;
	Begin
0.75	For i ← 0 To n-1 Do Read(T[i]);
0.5	min ← T[0];
0.5	For i ← 1 To n-1 Do
0.75	If T[i] < min Then min ← T[i];
0.5	For i ← 0 To n-1 Do
0.5	T[i] ← T[i] – min;
0.5	For i ← 0 To n-1 Do Write(T[i]);
	End.

Exercise 4: (5 pts)

	Algorithm ex4 ;
1	Const n = 6; m = 7; Type Tab = Array[n,m] of integer; Var T:Tab; i,j,nbZeros:integer;
	Begin
0.75	For i ← 0 To n-1 Do
	For j ← 0 To m-1 Do
	Read(T[i,j]);
0.5	nbZeros ← 0;
0.75	For i ← 0 To n-1 Do For j ← 0 To m-1 Do
0.75	If T[i,j] = 0 Then nbZeros ← nbZeros + 1;
0.75	If nbZeros ≥ (2*n*m)/3 Then write("The matrix is sparse")
0.5	Else write("The matrix is dense");
	End.