QUESTION	Q1(15)	Q2(15)	Q3(10)	Q4(10)		TOTAL/50
Mark	14	14	10	9		4

Q1) – A (5 Marks): True / False:

1	Machine language is considered as a simple language for programming	F
2	Any programming language has a grammar (set of rules) called the syntax of the language.	T
3	Programs written in machine language are patterns (or sequences) of 0s and 1s.	T
4	C++ is an example of second generation programming languages	F
5	Compiler is a program that reads the source code line by line, translates it, and then delivers it to the computer to execute it.	F

at onetime

$\frac{15}{19} \frac{14}{27} +$

Q1) – B (10 Marks): Write the equivalent number as indicated:

1	$(101010001)2$	(151)16
2	$(935)10$	(1110100111)2
3	$(430)8$	(F18)16
4	$(10100101)2$	(165)10
5	$(1001101)2+(FE)16$	(15B)16 → 19B
6	$(2F7)16$	(0010 1111 0111)2
7	$(EBC)16$	(7274)8
8	$(41)10$	(51)8
9	$(F4)16$	(244)10
10	$(1110+1101)2$	(11011)2

2) 101010001,
+ 51 +

2)
2÷935
2÷467 1
2÷233 1
2÷116 1
2÷58   0
2÷29   0
2÷14   1
2÷7   0
2÷3   1
2÷1   1
0   1

3) 7 4 3 0 8
 111 000 011 000 2
 F   1   8   16

4) 10100101
$1×2^7+0×2^6+1×2^5+0×2^4+0×2^3+1×2^2+0×2^1+1×2^0$
128+32+4+1
(165)8=

5) 1001101
  1111110 +
  10100 1011, 1
  1   5   B

3
16 ×
15
80
160
240

6) $(2F7)16$
 (0010 1111 0111)2
 7)(E B C)
 (1110 1011 1100)
 (7 2 7 4)

8) (41)8
2÷41
8÷5 1
0   5

9) F4
15 ×16¹+4×16⁰
249= 240 + 4

1110
1101 +
(11011)

A (5 Marks): Read the sentences below, and then determine whether each one is syntactically valid (true) or invalid (false).

No	Statement	[Valid \ Invalid]
1.	int x,y;	Valid
2.	char ch1; float 1n,u;	Invalid
3.	double x=0,y=3; y + = 2/x;	Valid خلاص في حالتين المسألة مش اوكي

4.	int x,y;
	y=0;
	x= y++;
		Valid

5.	int g=5; cout << g*3<<g-2;	Valid

4

Q2) – B (10 Marks) What is the output of the following code segments:

No.	Statements	Output
1.	int A,B, C; A=10; B=20; C=30; C= B-- + --C + A++; cout << A << B << C << endl; A=5 ; B= 6; cout << A/B << A%B << endl; cout << ++A/B-- << endl;	11 19 59 0 5 1
2.	char ch='A'; int x; x= ch; cout << x/2;	32
3.	char A='B'; cout << A;	B
4.	string N="Hello Friend"; cout << N.length()<< " N";	12 N
5.	int x=1; cout <<++x;	2

10

2

Q3) (10 Marks): Assume three marks were entered, if all the marks in the same range (e.g. between 0 and 100), Draw a flowchart and pseudocode for a program that will calculate the average of the top two marks.

$M_1 = 5$
$M_2 = 3$
$y = 4$

Flowchart	Pseudocode

	— start
	— enter M_1, M_2, M_3
	
	— ~~if $M_1 > M_2, M_1 > M_3$~~
	~~$MAX_1 > M_1$~~
	~~if $M_2 > M_1$~~
	~~else if $(M_2 > M_3)$~~
	~~$MAX_2 > M_2$~~
	~~else $MAX_3 = M_3$~~
	
	— if ($M_1 > M_2$ and $M_1 > M_3$)
	  if ($M_2 > M_3$)
	    $Avg = \frac{M_1 + M_2}{2}$
	  else if ($M_2 > M_1$)
	    $Avg = \frac{M_2 + M_3}{2}$
	  else if ($M_3 > M_1$)
	    $Avg = \frac{M_3 + M_1}{2}$
	
	— Print Avg
	— end