**Tutorial (1)**

Q1: Write the Algorithm and the Flow chart to computes the sum, average and product of three numbers:

```
Start

Read X, Y, Z

Read X, Y, Z
Compute Sum (S) as X + Y + Z

Compute Average (A) as S / 3

Compute Product (P) as X * Y * Z

Write (Display) the Sum, Average and Product

Write S, A, P

Stop
```

Q2: Write the Algorithm and the Flow chart to reads two numbers and displays the numbers read in decreasing order.

```
Start

Read A, B

Read A, B

If A is less than B
    BIG = B
    SMALL = A
else
    BIG = A
    SMALL = B

Write (Display) BIG, SMALL

A < B ?

no yes

BIG = A
SMALL = B

Write BIG, SMALL

Stop
```
Q3: Write a program with a number (n) as its input which calculates the following formula and writes the result:

\[ S = \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \frac{1}{8} + \ldots + \frac{1}{n} \]

INPUT “Enter the number”; N

\[
K = 2 \\
S = 0 \\
40 \ S = S + 1/K \\
K = K + 2 \\
IF K <= N THEN \\
\quad \text{GOTO 40} \\
ELSE \\
\quad \text{PRINT “The sum =“}; S \\
\text{END IF}
\]

Q4: Design an algorithm and the corresponding flowchart for adding the test scores as given: 26, 49, 98, 87, 62, 75

a) Algorithm:
1. Start
2. Sum = 0
3. Get the first test score
4. Add first test score to sum
5. Get the second test score
6. Add to sum
7. Get the third test score
8. Add to sum
9. Get the fourth test score
10. Add to sum
11. Get the fifth test score
12. Add to sum
13. Get the sixth test score
14. Add to sum
15. Output the sum
16. Stop
Exercise: Predict the output of the following programs and actually carry out the coding.

1. PRINT 16-10+4
2. PRINT 20+7*2
3. PRINT 5*3-2
4. PRINT 16-7*2
5. PRINT (16-7)*2
6. PRINT 14-6/2
7. PRINT 10^2
8. PRINT (5+2)^2
9. PRINT 5+3^2
10. PRINT 5^3+2
11. PRINT 2^3*5
12. PRINT 12*6-5*4
13. PRINT 12*(6-5)*4
   PRINT 12/6*0.5
   END
14. PRINT 5*4+7-12  
    PRINT 3*12/4-5  
    PRINT 5+18/2-9  
    PRINT 10*15-36/4  
    END  
15. PRINT 9*4/6+3  
    PRINT 9*4/(6+3)  
    PRINT 12-4/2+2  
    PRINT (12-4)/2+2  
    END  
16. PRINT (3^2+8)/2  
    PRINT 3^2+8/2  
    PRINT 3^(2+8/2)  
    PRINT (9*5+15)/(2^3)  
    END  

Q5: Write a program to find the result of the equation below:

\[ q = a^3 + \frac{3ab}{7} + 2\sqrt{b} \]

INPUT a,b  
q=a^3+(3*a*b/7)+2*sqr(b)  
PRINT q  
END  

Q6: Write a program to calculate the area and circumferential of rectangle shape.

INPUT a,b  
LET AREA=a*b  
LET CIR=(a+b)/2  
PRINT AREA, CIR  
END  

Q7: Write a program to calculate the area of circle.

CLS  
pi! = 3.1415  
INPUT "What is the radius of the circle? ", radius!
area! = pi! * radius! ^ 2
PRINT "The area of the circle is ", area!
END

Q8: This program converts the temperature from Celsius to Fahrenheit:

CLS
INPUT "How many degrees Celsius"; c
PRINT c; "degrees Celsius ="; c * 1.8 + 32; "degrees Fahrenheit"
END

Q9: Check TRUE and FALSE for the following statements:

a%=1: b%=2: c%=3
a% < c% AND c% >= a% + b% \[ TRUE AND TRUE \Rightarrow TRUE \]
c% >= a% + b% AND c% < a \[ TRUE AND FALSE \Rightarrow FALSE \]
c% < a AND b% = a% * 3 \[ FALSE AND FALSE \Rightarrow FALSE \]
c% >= a% + b% OR c% < a \[ TRUE OR FALSE \Rightarrow TRUE \]
c% < a OR b% = a% * 3 \[ FALSE OR FALSE \Rightarrow FALSE \]
NOT (c% - b% = a%) \[ NOT (TRUE) \Rightarrow FALSE \]
NOT (b% >= c%) \[ NOT (FALSE) \Rightarrow TRUE \]