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THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATION COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

COMPUTER STUDIES 2- PRACTICAL (FORM IV) NOV 2001
(For Both School and Private Candidates)

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(For both School and Private Candidate)
Time 3 Hours .

1. You are given sets of numbers as follows:
   (a) 18.1, 19.2. 16.0, 12.8, 14.3, 20.9, 16.1. 11.9
   (b) 100.3, 86.9, 143.8, 99.2, 109.6, 111.1, 97.0, 115.1, 121.9, 109.2, 109.2, 88.4, 89.1, 93.6, 108.2
   (c) –3.2, -0.5, 1.2. 0, 1.4, 1.5, 2.4, -1.5, 2.2, -2.1, -1.3.

   Implement a program, which will calculate the sum and the average of each group. Hence give the sum and average of each group.

2. Students in a school are examined in physics, chemistry, mathematics and English. Prepare a program, which will show the names of students and their scores in a tabular form and create a merit list. The program should include a condition for eliminating from the list any student who scores below 35 in English.

3. given that for any triangle

$$Area = \frac{AB\sin\theta}{2}$$

and the length of the third side is
$C = (A^2 + B^2 – 2AB \cos\theta)^{½}$

Implement a triangle that will calculate the area and length of the third side of a triangle.
Calculate the values if A, B and θ have the values, 1, 2 and 30° respectively.

SOLUTIONS SCHEME

Problem definition to calculate sum and average of numbers in a given group

Output: Sum, average
Input: numbers
Process: adding all numbers and dividing by the total number of items

Algorithm

Start
Read the number
Calculate sum, average
Display sum, average
End

```
5    CLS
10   DIM A(8),B(15),C(11)
20   REM TO CALCULATE SUM AND
AVERAGE FOR GROUP A
30   sum = 0
40    FOR i = 1 TO 8
50   READ  a (i)
60   sum = sum + a(i)
70   NEXT i
80   DATA 18.1,19.2,16.0,12.8,14.3,20.9,16.1,11.9
90    avg  = sum/8
100  Print "Sum =";sum, "Average =" avg
```

```
110  REM  SUM AND AVERAGE FOR GROUP
B
120  sum = 0
130  FOR i  = 1 + 15
140  READ  b(i)
150   sum = sum +b(i)
160  NEXT i
170  DATA
100.3,86.9,143.8,99.2,109.6,111.1,97.0,115.,121.9,10
9.2,88.4,89.1,93.6,108.2
180    avg  =sum/15
190   print "sum =" sum, "average = "; avg
200  REM SUM AND AVERAGE FOR GROUP
C
210    sum  = 0
220  FOR  i  = 1 TO 112
230  READ  c(i)
240   sum = sum + c(i)
250   NEXT  i
260   DATA  -3.2,-0.5,1.2,0,1.4,1.5,2.4,-1.5,2.2,-2.1,-
1.3
270    avg =  sum/11
280   print "sum ="; sum, "average = "; avg
290     END
```

2.Students in a school are examined in Physics, Chemistry, Mathematics and English. Prepare a program which will show the names of students and their scores in tubular form and create a merit list .The program should include a condition for eliminating from the list any student who scores below 35 in English.

Problem definition .To create merit list and students scores in tabular form

Output: Students' names and their scores
Input: Students' names and Marks in each subject
Process: testing if a mark in English is below 35 and removing the name from the merit list

Algorithm:
Start
Enter students names, marks
Testing if a score is below 35 in English
Display the merit List
End.

```
PROGRAM
Cls
Rem program to create merit list
Input " How many students set for the exam?";S
For  i  = 1 to S
Input  "name";n$(i)
Input  "mark in Physics";p(i)
Input  "mark in Chemistry"; c(i)
Input "Mark  in Mathematics"; m(i)
Input "Mark  in English"; e(i)
Next  i
Print
Print  "MERIT LIST"
Print " Students names" "Physics"; "Chemistry"
"Mathematics"; "English"
For i = 1 to S
If  e(i) < 35 then 10 else  go to 5
5 print n$(i),p(i),C(i),m(i),e(i)
10 Next  i
 END
```

3.Given that for any triangle

$$Area = \frac{AB\sin\theta}{2}$$

and the length of the third side is
c = (A^2+B^2 -2AB Cosθ) ½
Implement a program that will calculate the area and length of the third side of a triangle
Calculate the values if A,B and θ have the values 1,2 and 30º respectively.

Problem definition. To calculate the are and length of the third side of a triangle.

Output: area, length of the third side
Input: length of side Aside B and angle θ
Process : $Area = \frac{(A * B\sin\theta)}{2}$ C = SQR(A^2+b2 –2*A*B Cos θ)
Algorithm
Start
Enter values of A,B, θ
Calculate area and length of C
Display area and Length C
END

```
PROGRAM
Cls
 REM basic program to calculate area and length of
the third side of a triangle.
Read  A,B ,t
Rem change angles in degrees to its equivalent in
radians
```

Let $K = \frac{(3.14159 * t)}{180}$

$$Area = \frac{(A * B * \sin(k))}{2}$$

```
C = SQR (A*A + B*B-2*A*B*Cos (k) )
Print " area = "; Area," third side" ; C
Data  1,2,30
END
```