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036/2

COMPUTER STUDIES 2- PRACTICAL
(For Both School and Private Candidates)

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Time :3 Hours
Instructions.
1.This paper Consists of 3 (Three) question
2.Answer only One question
3.Write all the answers in the answer booklet provided
4.Show all the steps in your working, giving answers at each stage
5.Write your Examination Number on every page of your answer

1.A sum of money P, has been invested for N years at compound interest at the rate of R% per annum.

The final amount A of money is represented by
$A = P(1 + R/100)^{\wedge} N$
We would like to write a computer program, which when supplied with values of P, R,N will print the value of A.

(a) Draw a flowchart diagram to represent the design of this program.

(b) Using BASIC language write a program which reads the values of P, R and N and prints the value of A in the follows format.

THE AMOUNT OF MONEY IS XX

2.write a Basic program to read numbers in the range 40-80 and print the corresponding grade letters where
A represents values from 70 to 80
B represents values from 60 to 69
C represents values from 50 to 59
D. represents values from 40 to 49

An error "OUT OF RANGE" should be displayed if a number below 40 or above 80 is entered. Use a dummy value of O to stop the program. The output should look like this

MARK	GRADE
XX	XX

3.Write a Basic program to display the following identity matrix.

$$I = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

SOLUTIONS SCHEME

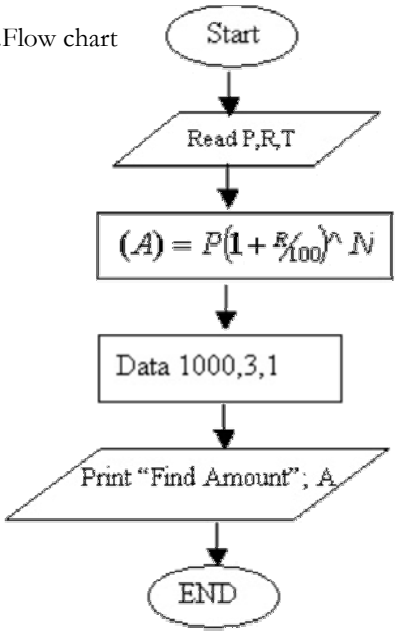
ANSWER NO 1

1.Problem definition: To find the value of money invested at the rate of R% for N years.
Output: Final Amount
Input: Money (P), rate, years
Process: To calculate Find Amount

$(A) = P(1 + R/100)^{\wedge} N$

2.Algorithm
Start
Enter money, rate, and years
Calculate Amount (final Amount)
Display Final Amount
END

3.Flow chart



4. The program

```
5  Cls
10 REM PROGRAM TO CALCULATE FINAL AMOUNT
20 READ p, r, n
30 a = p * (1 + r/100)^ n
40 DATA 1000,3,1
50 Print "THE AMOUNT OF MONEY IS ";a
60 END
```

ANSWER NO 2:

1.Problems Definition: Read a number and prints its grade letter.
Output: Number, grade
Input: numbers in a range 40-80
Process: Reading a number and checking if a number
represents values from 70 to 80 then grade A
if values are from 60 to 69 then grade B
if values are from 50 to 59 then grade C
if values are from 40 to 49 then grade D

2.Algorithm.
Start
Input a number
Checking if its grade A, B, C or D
Display a number and grade
END.

3. The program

```
10 REM ENTER NUMBER AND PRINT CORRESPONDING GRADE LETTER
20 INPUT "ENTER A NUMBER"; n
25 IF n <>0 then 30 else go to 90
30 IF n < 40 or n > 80 then Print " OUT OF RANGE" : GO TO 20
40 IF n > = 70 then g$ = "A" : go to 80
50 IF n > = 60 then g$ = "B": go to 80
60 IF n > = 50 then g$ = "C" : go to 80
70 IF n > = 40 then g$ = "D": go to 80
80 Print "Mark", "Grade"
85 Print  n,g$
90 END
```

ANSWER 3

1.Problem definition .To write a program to create a 2 x 2 identity matrix and printing it.
Output: identity matrix
Input: 1,0,0 1
Process: Create a 2x2 table using subscripted variables and print the table (Matrix)

2.Algorithm
Start
read values
Create a matrix
Display the matrix
END

3. Program

```
10 DIM A(2,2)
20  for i  = 1 to 2
30 For j = 1 to 2
30 Read A (i,j)
40 Next j
50 Next i
60 Data 1,0,01
70 For i  = 1 to 2
80 For j = 1 to 2
90 print A(i,j);
100 Next j
110 Print
120 Next i
130 END
```