

For-Next Statement in QBASIC

EXERCISES SOLUTION

Objective

I. State True or False:

- | | |
|--|--------------|
| 1. For statement may or may not be followed by Next. | <u>False</u> |
| 2. For-Next statement is used to generate finite loops. | <u>True</u> |
| 3. A loop can also be generated using GOTO statement. | <u>True</u> |
| 4. The initial value of the variable FOR may begin with a negative number. | <u>True</u> |
| 5. By default, the increment of the variable in a FOR-NEXT statement is +1 | <u>True</u> |
| 6. Without using STEP value, the control may jump to the next value. | <u>True</u> |

Subjective

I. Answer the following questions:

1. What is a loop?

A task repeated again and again for a fixed number of times is known as a **loop**.

2. What are different ways to generate a loop in BASIC programming?

Loop can be performed by using :

- counter method
- FOR-NEXT loop
- WHILE-WEND loop
- DO.....WHILE loop

3. Explain the following with an example:

- Continuous loop**
- Step loop**

Continuous loop - A continuous loop has no condition which will provide an exit to the loop, the program will continue reading the commands between the DO and the LOOP endlessly (forever).

example :

```
CLS
INPUT "Enter a name"; N$
START:
PRINT N$
GOTO START:
END
```

Step loop - The process of repeating a series of statements as many times as needed.

example :

```
CLS
FOR I = 1 TO 10
PRINT "Creane School"
NEXT I
END
```

4. Write down the format of :

a. WHILE – WEND

```
WHILE <condition>
.....
Tasks to do
.....
WEND
```

b. FOR – NEXT

```
FOR <variable> = <Initial value> TO <Final value>
.....
Tasks to do
.....
NEXT <variable>
```

II. QBASIC Programming using FOR-NEXT :

1. Write a program in QBASIC to display the first 10 terms of the series:

a. 3, 6, 12, 24..... up to 10 terms

```
CLS
A = 3
FOR I = 1 TO 10
PRINT A
A = A*2
NEXT I
END
```

b. -1, 2, 5, 8..... up to 10 terms

```
CLS
A = -1
FOR I = 1 TO 10
PRINT A
A = A+3
NEXT I
END
```

c. 7, 14, 21, up to 10 terms

```
CLS
A = 7
FOR I = 1 TO 10
PRINT A
A = A+7
NEXT I
END
```

2. Write a program in QBASIC to display the sum of the first 10 terms of the series:

a. $S = 5 + 8 + 11 + \dots$

```
CLS
A = 5
S = 0
FOR I = 1 TO 10
S = S+A
PRINT A
A = A+3
NEXT I
PRINT "Sum of the series = "; S
END
```

b. $S = 99 + 90 + 81 + \dots$

```
CLS
A = 99
S = 0
FOR I = 1 TO 10
S = S+A
PRINT A
A = A-9
NEXT I
PRINT "Sum of the series = "; S
END
```

c. $1 + 2 + 4 + 8 + \dots$

```
CLS
A = 1
S = 0
FOR I = 1 TO 10
S = S+A
PRINT A
A = A*2
NEXT I
PRINT "Sum of the series = "; S
END
```

3. Write a program in QBASIC to enter the name and marks secured in 12 subjects in a term examination. Display the name, total and the average marks.

```
CLS
INPUT "ENTER YOUR NAME"; N$
FOR I=1 TO 12
INPUT "ENTER THE MARKS";M
S=S+M
NEXT I
PRINT N$
PRINT "YOUR TOTAL MARKS ="; S
PRINT "YOUR AVERAGE MARKS =";S/12
END
```

4. Write a program in QBASIC to calculate the area and the perimeter of 10 different rectangles. Take length and breadth as inputs and display the results.

```
CLS
FOR I = 1 TO 10
INPUT "Enter length" ; L
INPUT "Enter breadth" ; B
A = L*B
P = 2*(L+B)
PRINT "Area of rectangle = "; A
PRINT "Perimeter of rectangle = "; P
NEXT I
END
```

5. A class teacher wants to calculate the average marks obtained by a student in three terms in a class of 50 students. Write a program in QBASIC to enter name and the total marks obtained by a student in three terms. Display the result along with the name.

```
CLS
INPUT "Enter name of student"; N$
S=0
FOR I = 1 TO 3
INPUT "ENTER MARKS"; M
S=S+M
NEXT I
PRINT "MR./MS. "; N$
PRINT "Your total marks = "; S
PRINT "Your average marks = "; S/3
END
```

6. Write a program in QBASIC to display 10 different values of the expression $(a + b)^2$. Take the values of a and b as inputs after each iteration.

```
CLS
FOR I = 1 TO 10
INPUT "enter the value of a"; A
INPUT "enter the value of b"; B
E = (A+B)^2
PRINT "Value of expression (a+b)^2 = "; E
NEXT I
END
```

III. Correct the error and write the program:

- | | |
|--|---|
| <p>1. Error</p> <pre>START Input N For I = 1 to N Print (I+I) Next I STOP</pre> | <p>Correct Program</p> <pre>CLS INPUT "enter the value of N"; N FOR I = 1 to N PRINT I+I NEXT I END</pre> |
| <p>2. Error</p> <pre>START For I = 1 to N Enter your height in meters (M) CM = M/100 Print CM Next I STOP</pre> | <p>Correct Program</p> <pre>CLS INPUT "enter the value of N"; N FOR I = 1 TO N INPUT "enter your height in meters"; M CM = M*100 PRINT "your height in centimeter = "; CM NEXT I END</pre> |