10 MCQ (1 mark each)

Q1:  In situations where we need to execute body of the loop before testing the condition, we should use \_\_\_\_\_\_\_\_\_\_.

a)for loop

b)while loop

c)do while loop

d)nested for loop

Q.2. Which keyword is used to transfer control from a function back to the calling function?

a) switch

b) Break

c) goto

d) return

Q.3. Functions cannot return more than one value at a time. True or False?

a) True

b) False

Q.4. scanf() can be used for reading \_\_\_\_\_\_\_\_\_\_?

A. Double integer

B. Single integer

C. Multiple integers

D. No integer

Q.5. Which of the following function is appropriate for reading In a multi-word string?

A. printf()

B. scanf()

C. gets()

D. puts()

Q.6. Which of the following is not a valid declaration of arrays?

A. int marks[4] = { 67, 87, 56, 77 }

B. float area[5] = { 23.4, 6.8, 5.5 }

C. int marks[] = { 67, 87, 56, 77, 59 }

D. int marks[4] = { 67, 87, 56, 77, 59 }

Q.7. Which library file contain all the string handling functions?

A. stdio.h

B. conio.h

C. string.h

D. none of the above

Q.8. Which of the following is an exit-controlled loop?

A) while loop

B) for loop

C) do--while loop

D) None of the above

Q.9. A pointer is

A) A keyword used to create variables

B) A variable that stores address of an instruction

C) A variable that stores address of other variable

D) All of the above

Q.10. Are the expression \*ptr++ and ++\*ptr are same?

A) True

B) False

**5 MCQ (2 mark each)**

Q.1. What will be the result of given code?

main()

{

int i = 1;

for( ; ; )

{

printf("%d",i++);

if(i > 5)

break;

}

}

a)1 2 3 4 5

b) error because condition in for loop is must

c) error because of two semicolon inside for loop.

d) error because of break inside for loop.

Q.2. Which of the following statement is true about a function with an argument?

a) No value is pass to the function during function call.

b) function with an argument must not have return type

c) function with an argument is declared and define with parameter list

d) none of the above

Q.3. How many times the following program would print "abc"?

main()

{

printf("\nabc");

main();

}

A. Infinite number of times.

B. 32767 times

C. 65535 times

D. Till the stack does not overflow.

Q.4. What will be the output of the program if the array begins at 1200 in memory?

main()

{

int arr[] = {2, 3, 4, 1, 6};

printf("%u, %u, %u\n", arr, &arr[0], &arr);

return 0;

}

A. 1200, 1202, 1204

B. 1200, 1200, 1200

C. 1200, 1204, 1208

D. 1200, 1202, 1200

Q.5. What will be the output of given code?

main()

{

int arr[3] = {1, 2};

printf("%d", &arr[2]);

}

A. Error

B. garbage value

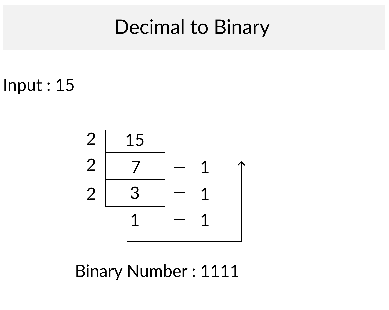
C. 1

D. 2

**2 Coding Questions (5 mark each)**

Q.1. Decimal to Binary conversion

Computer cannot understand decimal numbers, it understands only zeros and ones. Write a program to help computer by converting decimal number to binary.



Considering the same example,

15 / 2 = 7 rem = 1,

7 / 2 = 3 rem = 1,

3 / 2 = 1 rem = 1,

1 / 2 = 0 rem = 1

Binary equivalent of 15 is 1111.

**Sample Input 1**

100

**Sample Output 1**

1100100

**Sample Input 2**

215

**Sample Output 2**

11010111

**Input Explanation**

Input consists of single integer value

**Output Explanation**

Output consists of single integer value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test Case 1** | **Test Case 2** | **Test Case 3** | **Test Case 4** | **Test Case 5** |
| **Input** | 334 | 25 | 99 | 123 | 486 |
| **Output** | 101001110 | 11001 | 1100011 | 1111011 | 111100110 |

**#Solution**

#include <stdio.h>

long int decimal\_to\_binary(int n)

{

long int binary = 0;

int remainder, i, flag = 1;

for (i = 1; n != 0; i = i \* 10)

{

remainder = n % 2;

n /= 2;

binary += remainder \* i;

}

return binary;

}

int main()

{

int n;

scanf("%d", &n);

printf("%d",decimal\_to\_binary(n));

return 0;

}

Q.2. Number of Handshakes

It was Raj's first day at school. His teacher Anu asked the students to meet every other student in the class and to introduce about themselves. The teacher asked them to do handshakes when they meet each other.

If there are n number of students in the class then find the total number of handshakes made by the students.

• Input the number of people (n).

• Find nC2, calculated as n \* (n-1) / 2.

• Print the calculated result.

**Sample Input 1**

15

**Sample Output 1**

105

**Sample Input 2**

10

**Sample Output 2**

45

**Input Explanation**

Input consists of one integer , which corresponds to the total number of students.

**Output Explanation**

Output consists of one integer, which corresponds to the total number of handshakes.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test Case 1** | **Test Case 2** | **Test Case 3** | **Test Case 4** | **Test Case 5** |
| **Input** | 25 | 11 | 17 | 55 | 22 |
| **Output** | 300 | 55 | 136 | 1485 | 231 |

**#Solution**

#include<stdio.h>

int main()

{

int num;

scanf("%d", &num);

int total = num \* (num - 1) / 2;

printf("%d", total);

return 0;

}

**1 Coding Question (10 mark)**

Q.1. Occurrence of digit

Write a program to find the number of times digit m occurs in each and every number from 0 to n. Given a number n as input, count the number of m’s occurring in range from 0 to n. (value of range will be from 0 to n)

For example,

Input1: 100

Input2: 3

Output: 20

Total number of 3s that appear from numbers 0 to 100 are {3, 13, 23, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 43, 53, 63, 73, 83, 93}

**Sample Input 1**

50

5

**Sample Output 1**

6

**Sample Input 2**

45

2

**Sample Output 2**

15

**Input Explanation**

Input consists of two integer value

First input is ending value of the range

Second input is the single digit value to find the occurrence

**Output Explanation**

Output consists of integer value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Test Case 1** | **Test Case 2** | **Test Case 3** | **Test Case 4** | **Test Case 5** |
| **Input** | 99  2 | 75  1 | 88  3 | 15  2 | 27  7 |
| **Output** | 20 | 17 | 19 | 2 | 3 |

**#Solution**

#include <stdio.h>

int counts(int n, int m)

{

int count = 0;

while (n > 0)

{

if (n % 10 == m)

{

count++;

}

n = n / 10;

}

return count;

}

int count\_in\_range(int n,int m)

{

int count = 0;

for (int i = 2; i <= n; i++)

{

count += counts(i,m);

}

return count;

}

int main()

{

int n,m;

scanf("%d %d", &n, &m);

printf("%d",count\_in\_range(n,m));

return 0;

}