Dr. Vivek Sehgal

Roll No:.....

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 – October 2017

B.Tech (CSE/IT/ECE/CE/BI) 1st Semester

COURSE CODE: 10B11CI111 MAX. MARKS: 25

COURSE NAME: Introduction to Computers and Programming

COURSE CREDITS: 04 MAX. TIME: 1.5 Hrs

Note: All questions are compulsory. The carrying of mobile phone during examinations will be treated as a case of unfair means. All questions carry equal marks.

1. (a) Differentiate *while, do while,* and *for* loop with flow diagrams. **[3+2]**

   (b) Find the error in each of the following code segments and explain how to correct it.

(i)
```
x = 1;
while ( x <= 10 );
++x; }
```

(ii)
```
for ( y = .1; y != 1.0; y += .1 )
printf( "%f\n", y );
```

(iii)
```
switch ( n ) {
case 1:
puts( "The number is 1" );
case 2:
puts( "The number is 2" );
break;
default:
puts( "The number is not 1 or 2" );
break; }
```

(iv)
The following code should print the values 1 to 10.
```
n = 1;
while ( n < 10 )
printf( "%d ", n++ );
```

2. (a) Find out the outputs of the following codes: **[2+3]**

```
#include <stdio.h>
int main()
{
  int i = 0;
  for (; ; )
    printf("In for loop\n");
    printf("After loop\n");
}
```

```
#include <stdio.h>
int main()
{
  int i = 0;
  for (i++; i == 1; i = 2)
    printf("In for loop ");
    printf("After loop\n");
}
```

```
#include <stdio.h>
int main()
{
  int i = 0;
  while (i = 0)
    printf("True\n");
  printf("False\n");
}
```

```
#include <stdio.h>
void foo();
int main()
{
  void foo();
  foo();
  return 0;
}
void foo()
{
  printf("2 ");
}
```

(b) WAP to create a simple calculator to add, subtract, multiply and divide using switch and break statement.

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3. (a) WAP to Compute the following Table using single *for* loop: **[2.5+2.5]**

$5x1 + 6x10 =$
$5x2 + 6x9 =$
$5x3 + 6x8 =$
$5x4 + 6x7 =$
$5x5 + 6x6 =$

(b) WAP to print all prime numbers from 1 to 100.

4. (a) Write statements that assign random integers to the variable n in the following ranges: **[2+3]**

   i. $1 \leq n \leq 2$

   ii. $1 \leq n \leq 100$

   iii. $0 \leq n \leq 9$

   iv. $1000 \leq n \leq 1112$

   v. $-1 \leq n \leq 1$

   vi. $-3 \leq n \leq 11$

   (b) WAP to print the different outcomes of two rolled dies for 20 times. The sequence of outcomes must be different on different executions.

5. (a) Answer each of the following: **[2+3]**

   i. Lists and tables of values are stored in _____.

   ii. The number used to refer to a particular element of an array is called its_____ .

   iii. A(n)_____ should be used to specify the size of an array because it makes the program more scalable.

   iv. The process of placing the elements of an array in order is called _____the array.

   v. Determining whether an array contains a certain key value is called _____the array.

   vi. An array that uses two subscripts is referred to as a(n) _____array.

   (b) What is recursion? WAP to calculate the factorial of a number using recursion.