

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- OCTOBER-2023

COURSE CODE (CREDITS): 19B11CI111 (2)

MAX. MARKS: 25

COURSE NAME: Programming for Problem Solving II

COURSE INSTRUCTORS: VSG, RBT, YGL, AVA, KUS, PVM, FAZ MAX. TIME: 1 Hour 30 Min

Note: All questions are compulsory. Marks are indicated against each question in square brackets. Attempt all parts of a question together.

1. Find the output for the following C programs. [CO3] [1+1+1+2=5 Marks]

```
a)
#include<stdio.h>
int main()
{
int a;

a = 5 % 5 + 5 * 5 - 5 / 5;
printf(" %d", a);

return 0;
}
```

```
b)
#include<stdio.h>
int main()
{
int a, b;
a= 100;
b=0;
printf(" %d %d", a, b);

return 0;
}
```

```
c)
#include<stdio.h>
int main()
{
int x=2;
int y = 6;
int z = 6;
x = y | = z;
printf(" %d", x);
return 0;
}
```

d) Write a function that takes an integer and returns its reverse number. For example, given the number 5463, the function should return 3645.

2. [CO4] [2 + 2 + 1 Marks]

a) (*Calculating the value of Π*). Calculate the approximate value of Π from the series. $\Pi = (4 / 1) - (4 / 3) + (4 / 5) - (4 / 7) + (4 / 9) - (4 / 11) + \dots$

b) (*Conversion Celsius to Fahrenheit*). Write a C program that converts temperature from 30°C to 35°C (in step of 1) to the Fahrenheit scale. The program should print a table displaying temperature in the two scales side by side. [$F = (9.0 / 5.0) * C + 32.0$].

c) (*Sum of integers*). Write a C program that will read the value for n (n is a positive integer) and calculate the sum of first n even integers (eg. 2 + 4 + 6 + 8 + 2n).

3. Write the C code to generate the following pattern: [CO4] [2.5 + 2.5 Marks]

```

a)
      1
     2 3
    4 5 6
   7 8 9 10
  11 12 13 14 15
    
```

```

b)
 *
 **
 ***
 ****
 *****
    
```

4. [CO4] [1.5 + 1.5 + 2 = 5 Marks]

- a) Find the output of the following code.
- b) Find the output of the following code.
- c) The skeletal structure of a C program is shown below (4 c). Complete the c code so that the function *square_cube* computes square and cube of the number *n*.

```

4 a)
#include<stdio.h>
int main()
{
int i, j, sum =0;
for ( i=5 ; i >= 1 ; i-- )
{
for ( j= 1 ; j <= i ; j++)
{
printf(" %d", i);
sum += j;
}
printf("%d", i);
}
printf("Sum is %d ", sum);
return 0;
}
    
```

```

4 b)
#include<stdio.h>
int main()
{
int i , j, x = 0;
for ( i=0 ; i < 5 ; ++i )
{
for ( j=0 ; j < i ; ++j )
{
x += ( i + j -1 );
printf(" %d", x);
continue;
}
}
printf (" %d", x );
return 0;
}
    
```

```

4 c)
#include<stdio.h>
void square_cube(int n, int * square, int *
cube)
{
// complete the code
}
int main()
{
int n , square , cube;
printf (" Enter number n:");
scanf (" %d", &n );
square_cube(n, &square , & cube);
printf (" %d %d", square , cube );
return 0;
}
    
```

5. [CO5] [1 + 2 + 2 = 5 Marks]

- a) Write a function to swap the values of arguments using call by reference.
- b) Write a C program to read n number of values in an array and display the sum.
- c) Draw the flowchart for the nested for loops.