COMSATS University Islamabad, Abbottabad Campus
Department of Computer Science
Midterm Examination– Fall 2023

Class: BCS-2A
Subject: Programming Fundamentals
Total Time Allowed: 75 mins
Name:_____

Date: 01 Nov, 2023
Instructor: Dr. Mazhar Ali
Max Marks: 50
Registration#_____

Question 1) Identify the **valid** and **invalid** variable name in the following table. If the variable name is **invalid**, then write the rule(s) which is/are **violated**. **[CLO 1] [5 Marks]**

No	Constant	Valid/Invalid	Reason in case of invalid
1	**xabc**		
2	**_94**		
3	**9_24**		
4	**A94k$**		
5	**Y**		

Question 2) Write down the output of the following code. **[CLO 1] [5 x 2 = 10 Marks]**

1)
```
int main()
  {
     int i = -3;
     int k = i % 2;
     printf("%d\n", k);
        getch();
        return 0;

  }
```

2)
```
int main()
{
int num1=10,num2=20,num3;
num3 = num1 > 2 + num2!=3;
printf("%d",num3);
getch();
return 0;
}
```

Question 3) If originally x=1, y=0, and z=1, what is the value of x, y, and z after executing the following code? **[CLO 1] [5 Marks]**

```
if(x>y && x>z)
{y=x;z=x+1;}
else if(x+y>=z)
{x++;z=x+1;}
else y=z+x;
```

Question 4) State the hierarchy of operation and evaluate the following expressions. **[CLO 1] [5 Marks]**

(i) **result = big + 2 + big * 4 % big - big + small - 3 ;**
(small = 2.5, big = 2, assume **result** and **small** are **float variables**, and **big** is **integer** variable)

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(ii) **on = ink * act / 2 + 3 %2 * act + 2 / tig ;**
(ink = 4, act = 1, tig = 3.2, assume **on** and **tig** are **float** variables, and **ink** and **act** are **integer** variables)

Question 5) Write a program that should generate and print all numbers of Fibonacci series that are less than 250,000. The program should also display whether the generated number is prime or not. The output of the program should be as follows. **[CLO 2] [15 Marks]**

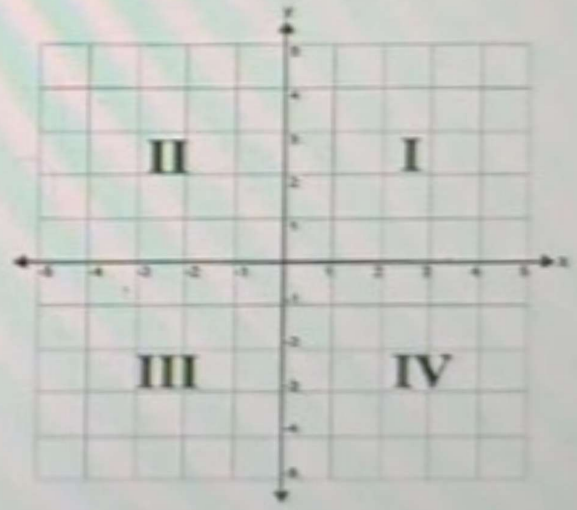
Fibonacci Number	Prime/Composite
1	Prime
1	Prime
2	Prime
3	Prime
5	Prime
8	Composite
13	Prime
21	Composite
.	.

Question 6) Write a C program to accept a coordinate point in an XY coordinate system and determine in which quadrant the coordinate point lies. Following is the example run for the program.

Please enter X coordinate: 7
Please enter Y coordinate: 9

The coordinate point (7, 9) lies in the First quadrant.

Following quadrant numbers are to be followed. **[CLO 2] [10 Marks]**



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