**Name:** .....

Predict the output

1. [2 pts]

```
int x = -5;
if (x)
   cout << "A" << endl;
else
   cout << "B" << endl;
```

2. [2 pts]

```
int score;
score = -1;

if (score <= 0);
   cout << "cheer up!" << endl;
cout << "Good ";
cout << "Luck!";
```

3. [2 pts]

```
bonus = 40;
if (bonus > 100)
   cout << "Give!\n";
   cout << "Save!\n";
   cout << "Spend!" << endl;
```

4. [2 pts]

```
int donuts = 10;

if (donuts = 20)
   donuts += 8;
else
   donuts += 2;
cout << donuts << endl;
```

5. [4 pts]

```
testScore = 60;
if (testScore> 50)
   cout << "You Pass!";
if (testScore <= 50)
   cout << "You need to STUDY!";
else
   cout << "good!";
```

6. [4 pts]

```
y = 25;
if (y > 40)
  cout << “1”;
else
  if (y > 30)
    cout << “2”;
  else
    if (y > 20)
      cout << “3”;
    else
      cout << “4”;
```

7. [4 pts]

```
score = 4;
if (score > 5)
   score = score + 5;
else if (score < 2)
   score = score + 6;
else
   score = score + 10;
cout << score << endl;
```

8. [5 pts]

```
int x = 166,
   y;
y = x % 100;

if (x < 99)
{
   cout << "A" << endl;

   if (y < 60)
      cout << "1" << endl;
   else
      cout << "2" << endl;
}
else
{
   cout << "B" << endl;

   if (y >= 60)
      cout << "3" << endl;
   else
      cout << "4" << endl;
}
```

9. [5 pts]

```
a = 1;
b = 6;
if (a > 5 || b > 10)
{
   cout << a << " " << b << endl;
}
else
{
   cout << b << " " << a << endl;
}
```

Fill in the following tables.

10. [8 pts]

| Relational expression<br>(int a = 7, b = 8;<br>bool answer;) | Value of *answer*<br>(true or false) | output |
|---|---|---|
| answer = (a + 1) == b;<br>cout << answer; | | |
| answer = (a - 6) <= b;<br>cout << answer; | | |
| answer = 5 != a;<br>cout << answer; | | |
| answer = (5 * a) > 4<br>cout << answer; | | |

11. [2 pts]

```
if (a < 5 && b <= 10)
    cout << "1";
else
    cout << "2";
```

| a | b | output |
|---|---|---|
| 5 | 10 | |
| 5 | 9 | |
| 6 | 10 | |
| 6 | 11 | |

12. [2 pts]

```
if (a < 5 || b <= 10)
    cout << "1";
else
    cout << "2";
```

| a | b | output |
|---|---|---|
| 5 | 10 | |
| 5 | 9 | |
| 6 | 10 | |
| 6 | 11 | |

13. [2 pts]

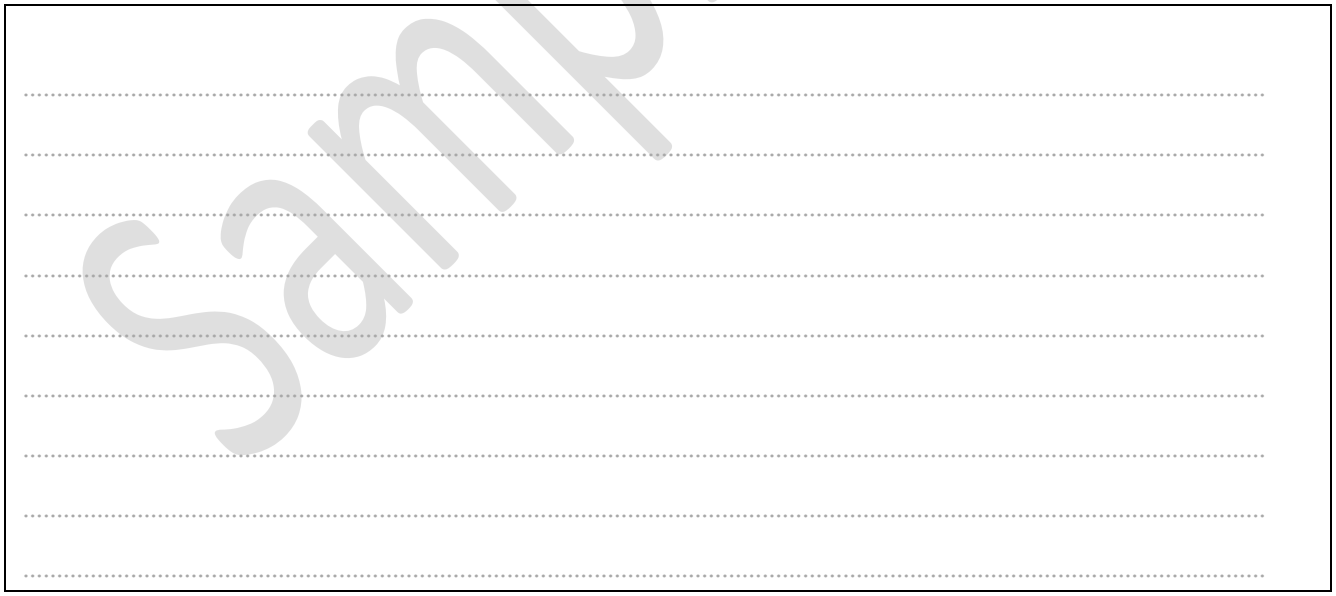
```
if (! (a < 5 && b <= 10))
    cout << "1";
else
    cout << "2";
```

| a | b | output |
|---|---|---|
| 5 | 10 | |
| 5 | 9 | |
| 6 | 10 | |
| 6 | 11 | |

1. [7 pts] Write a code SEGMENT using if statement to do the following, reset the value of *time* to 1 if the time was greater than 13.

Assume the variable *time* has already been defined and given values.

2. [7 pts] Write a code SEGMENT using if statement to do the following:
   If *num1* is between 150 and 250, then double it; otherwise, halve it.
   Assume the variable *num1* has already been defined and given values.



3. [7 pts] Write a program SEGMENT to find whether a given integer (*int kids*) is a factor of the another given integer (*int candy*) and output a proper message in either case. Assume that all variables have already been defined and given values.
   Examples:
   5 is a factor of 15 3 is not a factor of 25 6 is not a factor of 20

4. [10 pts] One of your friends is asked to assign each name in a list into one of the three groups according to their first initial. You are to help your friend by writing a program to do that. Write the code SEGMENT that outputs "Group 1" if the first initial is before F, inclusively, and "Group 2" if the first initial is before Q, inclusively, but after F, and Group 3 otherwise. You may assume the initial is stored in char variable *initial* and each initial would be given in upper case.

5 [10 pts] The following is a part of a program that finds the maximum of three numbers. Write if statement/s to find the maximum of three numbers (do not use logical operators), assume all preprocessor directives have been included and all the variables have been defined already.

```
cout << "Please enter the three number" << endl
cin >> num1 >> num2 >> num3;
```

6 [15 pts] Write a FULL program (including preprocessor directives) that generates a random number between 3 and 5, inclusively and display one of the following output depends on the number it generated. The number should be different each time the program is run. You must use the switch case for this. You DO NOT need to use output manipulator to format the output.

| | | | | |
|---|---|---|---|---|
| 3 | | * | * | * |

| | | | |
|---|---|---|---|
| 4 | | * | * |
| | | * | * |

| | | | | |
|---|---|---|---|---|
| 5 | | * | * | * |
| | | * | * | |