CMPS 221 Sample Midterm 2

1. What is a by-value parameter and a by-reference parameter? How do they differ?
2. Write a void function called get_input that has two call-by-reference integer parameters. The function will prompt the user for two integers and read the integers in to the parameters. Give both the function prototype and function body. Do NOT give main.
3. Write a calculation function called find_area that will return a double for the area of a rectangle. The function will take two double call-by-value arguments for the lengths of the sides of the rectangle. This is a pure calculation function. There should be NO cin or cout statements inside of your function. Give both the function prototype and function body. Do NOT give main.
4. Write the function called sum5 which calculates the sum of five doubles. This is also a pure calculation function.
5. Are the following function prototypes properly overloaded? If not, indicate which prototypes are in conflict.

```
int printMin(int);
void printMin(int);
void printMin(double);
void printMin(int, double);
void printMin(int=0, double=0.0);
```

6. What is the output of the following program?

```
#include <iostream>
#include <stdio.h>
using namespace std;

void rearrange(int &, int, int, int &);

int main()
{
  int num1 = 2, num2 = 5, num3 = 8, num4 = 10;

  printf("Before calling function:\n");
  printf("num1=%d num2=%d num3=%d num4=%d\n", num1, num2, num3, num4);

  rearrange(num1, num2, num3, num4);

  printf("After calling function:\n");
  printf("num1=%d num2=%d num3=%d num4=%d\n", num1, num2, num3, num4);

  return 0;
}

void rearrange(int &n1, int n2, int n3, int &n4)
{
  int tmp1 = n1, tmp2 = n3;

  n1 = n2;
  n2 = tmp2;
  n3 = n4;
  n4 = tmp1;
}
```

7. There are 5 syntax and logical errors in this program. List the errors and how to fix them.

```
#include <iostream>
using namespace std;

void average(int, int, double)

int main()
{
  int num1 = 5, num2 7, avg;

  average(num1, num2, avg);
  printf("The average is %d, avg.\n");

void average(int a, int b, double avg)
{
  int sum = a + b;
  avg = sum / size;
}

  return 0;
}
```