# CSE 202 Practice Final Exam

Each problem on the this exam should be completed in 20 minutes.

1. What will be printed by the following program :

```
#include<fstream>
#include<iostreamg>

using namespace std;

integer main()
{
  string st1, st2, st3;
  ifstream infile;
  infile.open("file.txt");
  infile >> st1 >> st2 >> st3;
  while (! infile.eof() )
   {
    cout << st1 << " " << st3 << " ";
    infile >> st1 >> st2 >> st3;
   }
}
```

   Assume the file file.txt has the following 3 lines :

```
This may answer
makes yes no
sense ? !
```

2. Consider the recursive program below. What is the value of f(5)?

```
int f(int i)
{
   if (i==1)
      {
        return(1);
      }
   else
      {
        return 2*f(i-1);
      }
}
```

3. Lets get ready for the basketball tournament! Assume the class Bracket has the following interface:

```
class Bracket
{
 public:
 Bracket(string location);
 string getdata() const;
 private:
 string location;
};
```

   The function *getdata* should return the value of the attribute. Write the member functions for this class. ALSO - rewrite the interface so that the getdata function is virtual.

4. Create a class Team which is derived from the base class Bracket. Include a constructor that accepts the location (Bracket) and the team name which is a string attribute for the class. Also include a function

*getdata* which returns the team name.

5. Create a class Player which is derived from the base class Team. Include a constructor that accepts the location (Bracket), team name (Team) and the player name which is a string attribute for the class. Also include a function *getdata* which returns the player name.

6. a. Write a main program that creates a vector **v** of Bracket* (pointer) objects by reading the data in from a file. The file (named tournament.txt) has the following format. Each line in the file has four string values (all without spaces)

   ```
   string1 string2 string3 string4
   ```

   - String1 indicates the type of the record - Bracket, Team, Player.
   - String2 is the Bracket name.
   - String3 is the Team name (if the record type is Bracket, the value is na).
   - String4 is the Player name (if the record type is Bracket or Team, the value is na).

   b. Process the vector **v** by applying the getdata function to each value object pointed to by elements of the vectori and outputing the result - one value per line.

7. Write a **bool** function template that accepts a vector of arbitrary type and a value of the same type and returns true if the vector contains the value, and false otherwise.

8. Write a class template Slist that consists of a vector attribute of arbitrary type. The Slist should have functions that add and remove at the FRONT of the list and return the front of the list. Include both the interface and the functions.

9. Create a main program that has an Slist of circles from the CWIN library. Add two circles and delete one circle from the Slist.