Having the following class:

```
#include _____________________________________________

#include _____________________________________________

#include _____________________________________________

_____________________________________________________

class Employee {
   char name_[41];
   int empNo_;
public:
   Employee(const char name[], int empNo) {
      strcpy(name_, name);
      empNo_ = empNo;
   }
   _____________________ print(_____________________ )_____________________________

   _____________________________________________________________________________

   _____________________________________________________________________________

   _____________________________________________________________________________

   _____________________________________________________________________________

   _____________________________________________________________________________

   _____________________________________________________________________________

};
```

1- [6 Marks] Complete the print method to print the information of the Employee as follows:
   - **name_**
   - **COMMA**
   - **SPACE**
   - **empNo_ (in 9 spaces, padded at left with zeros)**

   Example:
   ›**Fred Soley, 003456789**‹

   Also:
   The Employee may be inherited; make sure that the latest version of print is always called throughout the hierarchy of its derived classes.
   Print should receive and return a reference to the cout object.

2- [3 Marks] Overload the insertion ("**<<**") operator so that an Employee can be printed using "**cout<<...**"

3- [2 Marks] Complete the first four lines before the class definition so that the code compiles with no errors.

4- [2 Marks] Derive a class called Driver from the Employee class:
A- [1 Mark] Driver has an additional attribute (member variable) for a driver's license, called **`license_`**.
`license_` is an integer that can take up to 15 digits. (one variable and **NOT** an array)
B- [3 Marks] The constructor of the Driver class receives the same arguments as the Employee class with an additional variable to accept the driver's license. This constructor passes the arguments in common with the Employee to the constructor of the Employee and **initializes** the **`license_`** with the value of the third argument.
C- [3 Marks] Override the print method of the Employee class so as to add the license number to the end of what the Employee class prints as follows:

```
- DASH
- SPACE
- "license:"
- SPACE
and The value of the license_ number
Example:
>Fred Soley, 003456789- license: 2346767654556<
NO NEWLINE IS PRINTED!
```

D- [3 Marks] Can a Driver instance be printed with "**`cout<<...`**" like its parent? Explain.

5- The following function searches through an array of doubles and finds the largest one.
[3 marks] Convert the function to a template so it can work with array of any **type**.
[3 marks] Explain what **the type** needs to implement for the template to function correctly.

```
double findMaximum(const double array[], int size) {
   double max = array[0];
   for (int i = 1; i < size; i++) {
      if (array[i] > max) {
         max = array[i];
      }
   }
   return max;
}
```

6- [3 Marks] What do you call a class that only has pure virtual methods? What is the purpose of this type of class?

7- [5 Marks] The following program is saved in a file called **`fileWalk.cpp`**.
What is the **exact** output:

```
#include <fstream>
using namespace std;
int main() {
   int n = 10;
   fstream  f("fileWalk.cpp", ios::in);
   char str[1000] = “Nothing” /* 4 input */
   f.getline (str, 1000, '*');
   f >> n;
   cout << n << endl;
   f >> str;
   cout << str;
   cout << endl;
   return 0;
}
```

8- [4 marks] Name the two major types of polymorphism and briefly explain what they mean. Use examples to support your explanation.

9- [2 marks] What is the difference between a class and a struct?

10- [5 marks] Explain what Object Oriented Programming is to a non-technical person.