**PIRENS Institute of Computer Technology**

**Loni bk. Tal Rahata Dist.Ahmednagar**

**SUBJECT NAME:**

**Problem Solving using C++**

SUBJECT CODE:

IT11L

CLASS: MCA I SEM (I)

(2019-20)

***List of Practical’s to be submitted.***

***1. C++ Basics***

*1.Write a programs to demonstrate*

1. *all uses of :: (scope resolution operators)*
2. *To access global variables.*
3. *To access Base class Members*
4. *Inline function*
5. *To access static member of the class.*

*2. Write a program to demonstrate all inbuilt manipulators.*

*3. Write a program to create a new Manupulator named Rs. While will display number in currency format*

*E.g. if n=123.4567 then output should be*

*Rs. \*\*\*\*123.45*

*4. Differntiate malloc and free functions of C with new and delete operator with example*

*5. Compare macro and inline function with example.*

*6. Explain use of const keyword with respect to variable, functions and constructors.*

*7. Write a program to demonstrate function overloading with default arguments.*

**2.C++ Expressions and Control Statements**

1. *Write complete priority and associativity table of operators of C++*
2. *Write a program to display list of number from 1 to 100*

*1 11 21 31 41 51 61 71 81 91*

*2 12 22 32 42 52 62 72 82 92*

*3 13 23 33 43 53 63 73 83 93*

*4 14 24 34 44 54 64 74 84 94*

*5 15 25 35 45 55 65 75 85 95*

*6 12 26 36 46 56 66 76 86 96*

*7 17 27 37 47 57 67 77 87 97*

*8 18 28 38 48 58 68 78 88 98*

*9 19 28 39 49 59 69 79 89 99*

*10 20 30 40 50 60 70 80 90 100*

*3. Write a program to check Palindrome number.*

*4. Write a program to calculate*

*A] Factocial b] nPr c] nCr*

*5. Write a program to display Pascal triangle*

*1*

1. *1*

*1 2 1*

*1 3 3 1*

*1 4 6 4 1*

*1 5 10 10 5 1*

*6. Write a program to generate first n prime numbers*

*7. Write a program to accept single character and display weather it is an alphabet (Vowel/consonant)/digit or special character.*

***3. Classes***

*Write complete class definitions for the following classes. Use arrays, static members, const, pointers, constructors and destructors wherever applicable*

1. *Date*
2. *Time*
3. *Complex Number*
4. *Rational Number*
5. *String*
6. *SET of numbers*
7. *Matrix*
8. *Student*
9. *Mobile*
10. *Book*
11. *Computer*

***4.Operator Overloading and Type Conversion***

1. *Overload +, \*, - and division operators for rational number.*
2. *Overload ++, --, +, -, <, >, <=, >=, ==, != operators for date class.*
3. *Overload [] array subscript operator to extract character from string*
4. *Overload typrcast operator for length1(Mtr. And C.M.) and length2(feet and inches).*
5. *Overload cast operator new and delete for matrix class(which will allocate memory dynamically).*
6. *Explain all rules of operator overloading.*

***5. Inheritance & Polymorphism***

1. *Explain base member initialization with example.*
2. *Explain types of inheritance*
   1. *Private, public and protected*
   2. *Single, multilevel, hierarchical, multiple and hybrid inheritance with example.*
3. *Explain* 
   1. *Polymorphism*
   2. *Virtual function*
   3. *Abstract base class*
   4. *Pure virtual function*
   5. *Container class*

*Use all above concepts of OOP whichever are useful in implantation of above classes.*

***Note:*** *Students are advised to use all access specifiers (private, public and private) , this, static members, constructor/destructor, base member initialization, dynamic memory allocation, friend function and classes, inline functions, const, manipulators, iostream, functions/operator overloading, polymorphism.*

*\*\*\**