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# BMS College of Engineering, Bangalore-560019

**(Autonomous Institute, Affiliated to VTU, Belgaum)**

## July / August 2017 Supplementary Semester Examinations

Course: Programming with C++ Duration: **3 hrs**
Course Code: 16CI3GCPCP Max Marks: **100**

Date: 26.07.2017

**Instructions**: **1.Answer any five full questions choosing one from each unit.**
**2. Assume missing data (if any) suitably**

**UNIT 1**

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|---|---|---|---|
| **1** | **a)** | "It is possible to grant a nonmember function access to the private members of a class." Illustrate the above statement with suitable example . | **06** |
| | **b)** | Demonstrate with an example program to display the number of objects created using static member function . | **06** |
| | **c)** | Develop a C++ program to calculate CGPA of a student using friend function. | **08** |

**UNIT 2**

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|---|---|---|---|
| **2** | **a)** | Develop a C++ Program which creates a very limited safe integer array type that prevents array boundaries from being overrun using copy constructor. | **08** |
| | **b)** | Develop a C++ Program to add TWO complex numbers by Overloading + operator and display the result. | **06** |
| | **c)** | Demonstrate function overloading with a suitable C++ program. | **06** |

**UNIT 3**

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|---|---|---|---|
| **3** | **a)** | Demonstrate the advantages and disadvantages of different access specifiers with an example program. | **12** |
| | **b)** | Illustrate the order of invocation of Constructors and Destructors in Multilevel and multiple Inheritance with a program | **08** |

**OR**

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|---|---|---|---|
| **4** | **a)** | Illustrate the need for deriving a class as Virtual in C++ with a program. | **08** |
| | **b)** | Develop a C++ Program to demonstrate Pure virtual function. | **06** |
| | **c)** | Identify the errors in the following program. Write the correct program and output for it. | **06** |

```
Class B
{
        Int a;
        Public:   int b;  void get_ab();
                    Int get_a();    void show_a();
};
Class D : private B
{
        Int c;
        Public: void mul();              void display();
```

```
};

Void B :: get_ab()
{
        Cout<<" enter values for a and b: ";
        Cin>> a  >>  b;
}
int B :: get_a()
{
        return a;
}
Void B :: show_a()
{
        Cout << " a= " << a << "\n" ;
}
Void D :: mul()
{
        get_ab();
        c = b * get_a();
}
Void D :: display()
{
        Show_a();
        Cout << " b= " << b << "\n" << "c = " << c << "\n " ;
}

int main()
{
        D    d;
        d.get_ab();
        d.mul();
        d.show_a();
        d.display();
        d.b=20;
        d.mul();
        d.display();

        return 0;
}
```

**UNIT 4**

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|---|---|---|---|
| **5** | **a)** | Apply Template function to find the roots of a quadratic equation for integer and float coefficients. | **10** |
| | **b)** | Explain the Exception handling mechanism with an example C++ program.How are derived class exceptions handled. | **10** |

**UNIT 5**

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|---|---|---|---|
| **6** | **a)** | Illustrate the mechanism of opening,closing a file and reading from a file ,writing to a file with an example. | **12** |

**b)** Explain the following **08**

a) Containers b) algorithms
c) Iterators d) Std namespace

**OR**

7 **a)** Develop a C++ Program that demonstrates the use of counter namespace **10**

**b)** Illustrate the need for using put() and get() functions in files with an example C++ program. **10**

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