



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.TECH (IT)-(N)/SEM-5/IT-504F/2012-13  
2012**

**PROGRAMMING PRACTICES USING C++**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) A friend function has access to
  - a) all private and protected members of the class for which it is a friend
  - b) only private members
  - c) all public members
  - d) none of these.
- ii) Which is true regarding inline function ?
  - a) It does not save memory space
  - b) It saves memory space
  - c) More calling is needed
  - d) Inline functions may not be class member functions.

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[ Turn over



- iii) Friend function
  - a) can have the pointer
  - b) can not have the pointer
  - c) can not be overloaded
  - d) none of these.
- iv) An overloaded friend operator function is passed the operands
  - a) explicitly
  - b) implicitly
  - c) both (a) and (b)
  - d) none of these.
- v) Which is not overloaded in friend operator functions ?
  - a) =
  - b) ( )
  - c) [ ]
  - d) All of these.
- vi) For dynamic memory allocation which of the following are used ?
  - a) new, delete operators
  - b) malloc, free
  - c) both (a) and (b)
  - d) none of these.
- vii) Deleting an array of integers which is correct ?
  - a) delete [ ] p3 ;
  - b) delete p3[ ] ;
  - c) delete p3 ;
  - d) none of these.
- viii) Which is true if the base class contains a constructor ?
  - a) Base class constructor is called first followed by derived class
  - b) Derived class constructor is called first followed by base class
  - c) Both (a) and (b) can be done
  - d) None of these.
- ix) To remove the ambiguity when multiple base classes are inherited, which is used ?
  - a) Virtual base classes
  - b) Virtual function
  - c) Pure virtual function
  - d) All of these.



- x) Virtual functions implement the
- 'one interface, multiple methods'
  - 'multiple methods, one interface'
  - 'one interface only'
  - 'one method only'.
- xi) To declare a pure virtual function, which general form is used ?
- virtual *type func-name (parameter-list) = 0{ } ;*
  - virtual *type func-name (parameter-list) = 0 ;*
  - func-name (parameter-list) = 0 ;*
  - virtual *type func-name (parameter-list) ;*

### GROUP – B

#### ( Short Answer Type Questions )

Answer any *three* of the following.  $3 \times 5 = 15$

- Discuss the difference between C and C++.
- Discuss function overloading with proper example. When does the ambiguity problem arise ?  $4 + 1$
- How can we declare and initialize a static data member in a class ? What are the features of a static member function ?  $2 + 3$
- How can we create an abstract class in C++ ? How can we use the member functions of an abstract class ? Discuss with example.  $2 + 3$
- What is initialization list ? How can we use it ? Discuss one of the most important use of it with example.  $1 + 1 + 3$



**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Describe the features of constructor.  
b) What is 'dynamic initialization' of objects ?  
c) Discuss the use of copy constructor with example.  
d) Differentiate between constructor and destructor.  
 $3 + 3 + 4 + 5$
8. a) What is the use of *new* operator ? Discuss with example.  
b) Discuss the use of friend function with suitable example.  
c) Write a member function of a class that returns object.  
d) How can we send object reference to a friend function ? Discuss with example.  $4 + 4 + 4 + 3$
9. a) Discuss the use of virtual functions with an example.  
b) How can we use a virtual base class ? Show example.  
c) Discuss multiple inheritance with example.  
d) How can we declare a friend class ? Discuss with example.  $4 + 4 + 4 + 3$
10. a) What is function template ? Show its use.  
b) How can we use more than one argument with a function template ?  
c) What is class template ? Show its use programmatically.  $5 + 5 + 5$
11. a) Overload the ++ operator in the same class for pre and post increment.  
b) Write an exception handler for your own class and use it.  
c) Discuss the difference between function overloading and overriding.  $5 + 5 + 5$
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