

**Advanced Diploma in Information Technology (ADIT) /  
Bachelor in Information Technology (BIT)**

**Term-End Examination**

**June, 2007**

**CST-102 : COMPUTING : AN OBJECT ORIENTED APPROACH**

*Time : 2 Hours*

*Maximum Marks : 50*

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**Note :** *There are two Sections A and B in this paper. All the questions in Section A are compulsory. Questions number 1 to 10 carry one mark each. Questions number 11 to 14 carry 4 marks each. Answer any two questions from Section B. Each question of Section B carries 12 marks. Use C++ wherever necessary.*

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**SECTION A**

1. In C++ functions contained within a class are 1
  - (a) Member functions
  - (b) Inline functions
  - (c) Friend functions
  - (d) None of the above
  
2. Protecting data from access by unauthorised function is 1
  - (a) Data hiding
  - (b) Polymorphism
  - (c) Overloading
  - (d) Overriding
  
3. Bundling data and function together is 1
  - (a) Encapsulation
  - (b) Data hiding
  - (c) Polymorphism
  - (d) None of the above

4. Ability of a function or operator to act in different ways on different data types is 1
- (a) Overloading
  - (b) Overriding
  - (c) Data hiding
  - (d) Polymorphism
5. A normal C++ operator that acts in special ways on newly defined datatypes is 1
- (a) Classified
  - (b) Encapsulated
  - (c) Overloaded
  - (d) None of the above
6. Specify how many bytes are occupied by int, long double, float and long data types in Turbo C++ ? 1
- (a) 2, 10, 4, 4
  - (b) 10, 4, 2, 4
  - (c) 2, 4, 4, 10
  - (d) 4, 4, 4, 10
7. For how many times will the loop run ?  
Consider the statements for ( ; ; ) and for ( ; ; ); 1
- (a)  $\infty$ , 1
  - (b) 1,  $\infty$
  - (c)  $\infty$ ,  $\infty$
  - (d) 1, 1
8. Element A[7] is which element of array ? 1
- (a) 6<sup>th</sup>
  - (b) 7<sup>th</sup>
  - (c) 8<sup>th</sup>
  - (d) Can't say
9. The library function exit( ) causes an exit from 1
- (a) loop in which it occurs
  - (b) block in which it occurs
  - (c) function in which it occurs
  - (d) program in which it occurs
10. The expression \*&P and &\*P will return 1
- (a) Value at address and Address of value
  - (b) Address of value and Value at address
  - (c) Both give address of value
  - (d) Both give value at address

11. Write a program in C++ for determining factorial of a number entered by user. The program should be interactive. 4
12. Write short notes on any *two* with an example for each : 2+2=4
- (a) Copy constructor
  - (b) Virtual function
  - (c) Abstract class
13. How are the CASE Tools used in software development ? Give at least two advantages and two disadvantages of case tool. 2+2=4
14. Differentiate between any *two* of the following. Give at least two differences. 2+2=4
- (a) Call by value and Call by reference
  - (b) Structure and Class
  - (c) Overloading and Overriding

## SECTION B

Answer any **two** of the following questions. Each question carries 12 marks.

15. Write an interactive program in C++ to produce transpose of the matrix entered by the user. The coding should be accompanied with respective flow chart or algorithm and comments. 12
16. Write a program in C++ to calculate variance and standard deviation of N numbers entered by user interactively. Respective formulae are 12

$$\text{Variance} = \frac{1}{N} \sum_{i=1}^n (x_i - \bar{x})^2$$

$$\text{Standard Deviation} = \sqrt{\text{Variance}}$$

$$\bar{x} = \frac{1}{N} \sum_{i=1}^n x_i$$

17. Create two classes DM & DB which store the value of distances. DM stores distance in metres and centimetres. DB stores distance in feet and inches. Write a program that can read values for the class object and add one object DM with another object of DB. 12
- Use friend function to carry additional operation. The object that stores result may be DM or DB object depending on unit in which result is required. Display of output should be in the format of feet/inches on metre/cm depending on object on display.