



## BCA (Part II) EXAMINATION, 2009

### C++ PROGRAMMING

Time allowed: Three Hours

Maximum Marks: 50

Attempt any *five* questions

1. (a) What is encapsulation? Why is data considered safe if encapsulated? How are the terms abstraction and encapsulation related. 4
- (b) What do you understand by programming paradigm? What is procedural programming paradigm? What is meant by modularity and inheritance in OOP context? 6
2. (a) How is call-by-value method of function invoking different from call-by-reference method? Give appropriate examples supporting your answer. 4
- (b) Discuss the characteristics of the following with the help of examples:
  - (i) Auto variables
  - (ii) Static variables
  - (iii) Extern variables
  - (iv) Register variables
  - (v) Static function
  - (vi) Extern function
3. (a) Write a C++ program that convert a 2-digit octal number into binary number and prints the binary equivalent. 3
- (b) Write a C++ program to sum the sequence: 3  
 $x - x^2/2! + x^4/4! - x^6/6! + x^8/8! \dots$
- (c) Identify the possible error(s) in the following code fragment. Discuss the reason(s) of error(s) and correct the code:

```
cin >> i > j;
while (i < j)
    cout << i * j;
i ++;
```

 4
4. (a) What are the differences between a friend function and a member function? Does a non-member function have to be a friend to access a class members? How are static members different from non-static members of a class? 6
- (b) Define class to represent batsmen in a cricket team. Include the following members:  
Data members:



First name, Last name, Runs made, Number of fours, Number of sixes.

Member functions:

- (i) To assign the initial values
- (ii) To update runs made
- (iii) To display the batsman's information

Make appropriate assumptions about access labels. 4

5. (a) "Accessibility of a constructor or a destructor greatly affects the scope and visibility of their class." Elaborate this statement. 4
- (b) How does the access of inherited members depend upon their access specifiers and the visibility modes of the base class? Can private members of the base class be accessed by the derived class? If yes, how? What is containership? How does it differ from inheritance. 6
6. (a) How many file objects would you need to create to manage the following situations? Explain. 6
- (i) to process three files sequentially;
  - (ii) to merge two sorted files into a third file.
- (b) What does this pointer point to? Differentiate between the following expressions: 4
- (i) `this → data`
  - (ii) `(* this) . data`
7. (a) Given here is a structure definition:
- ```
struct box {  
    Char maker[21];  
    float height, width, length, volume;  
};
```
- Write a function that passes the address of a box structure and that sets the volume member to the product of the other three dimensions. 5
- (b) Write a function to compress any given string such that the multiple blanks present in it are eliminated. The function should return the compressed string? 5
8. (a) How does the public derivation of a class differ from private and protected derivation? 2
- (b) How can the private members of a class be made inheritable? 2
- (c) How is the access control through derivation different from friendship? 2
- (d) How are arguments sent to the base constructors in multiple inheritance? 2
- (e) How does the visibility mode control the access of members in derived class? 2



**BCA (Part II) EXAMINATION, 2009**  
**COMPUTER GRAPHICS**

Time allowed: Three Hours

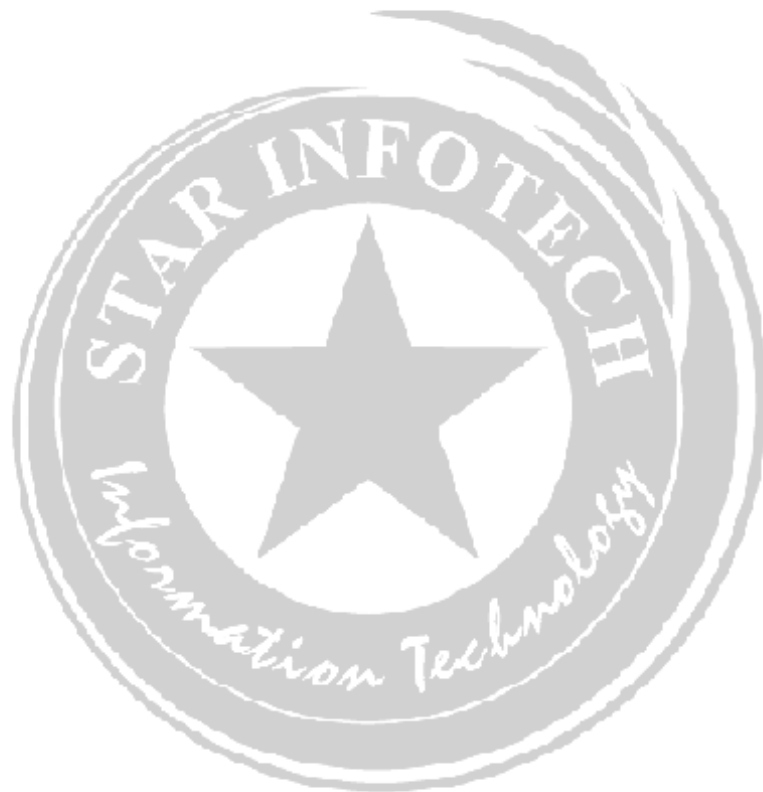
Maximum Marks: 50

*Attempt any **five** questions. All questions carry equal marks.*

1. Explain the working of the following input devices:
  - (i) Touch panel
  - (ii) Mouse
  - (iii) Scanner
  - (iv) Voice systems. 10
  
2. What is the difference between impact and non-impact printers? Explain the working of the following printers:
  - (i) Laser printer
  - (ii) Inkjet printer
  - (iii) Drum printer. 10
  
3. List the operating characteristics for the following display technologies:
  - (i) Raster refresh system
  - (ii) Vector refresh system
  - (iii) Plasma panels. 10
  
4. Discuss Bresenham's line drawing algorithm and compare it with DDA algorithm. 10
  
5. Explain the following (in short):
  - (i) Mid point circle generating algorithm
  - (ii) Mid point ellipse generating algorithm. 10
  
6. Explain with the help of examples the various two dimensional transformation techniques and write algorithms for them. 10
  
7. Explain the following:
  - (i) Boundary fill procedure to fill an 8-connected region
  - (ii) Character generation. 10
  
8. Prove that the multiplication of transformation matrices for each of the following sequence of operations is commutative:
  - (i) Two successive rotations



- (ii) Two successive translations
  - (iii) Two successive scalings. 10
9. (i) Discuss any polygon clipping algorithm
- (ii) What is scaling? Explain. 10
10. Write short notes on any two of the following:
- (i) Clipping of text
  - (ii) Different coordinate systems
  - (iii) Reflection. 10





**BCA (Part II) EXAMINATION, 2009**  
**COMMUNICATION SKILLS**

Time allowed: Three Hours

Maximum Marks: 50

*Attempt any five questions. All questions carry equal marks.*

1. How is written communication better than oral communication?
2. Explain with example formal and informal communication.
3. Write a business letter to various business organizations for introducing new products and services.
4. Write an application to get a job of computer operator in a private company.
5. State the main points that should essentially be incorporated in resume writing.
6. What do mean by the report writing? Explain various types of reports.
7. How will you write an effective report? Explain with examples.
8. Prepare a time table of examinations.
9. Prepare a notice for schedule of practical examinations.
10. Write any five agenda and minutes of an official meeting.



## BCA (Part II) EXAMINATION, 2009

### CLIENT SERVER TECHNOLOGY

Time allowed: Three Hours

Maximum Marks: 50

*Attempt any five questions*

1. What do you understand by client/server environment? Explain types of client and types of server in detail. 4+6
2. Write a short note on evolution of client/server concept and history of client/server technology. 10
3. Write short notes on:
  - (i) Connectivity
  - (ii) User Productivity
  - (iii) Reduction in Network Traffic. 3+3+4
4. Explain client/server development tools and advantages of client/server technology. 6+4
5. Explain the role of client and describe various client requests for service. 10
6. What is the difference in DLL and API? Explain use of API in client/server system. 3+7
7. Write short notes on:
  - (i) Features of Server Machines
  - (ii) Remote File Transfer
  - (iii) LAN Manager. 3+2+5
8. Write down about server operating system with the reference of OS/22.0 and Windows NT. 10
9. Explain layers of OSI model in brief and write a short note on IPC. 7+3
10. What do you understand by two-layer and three-layer architectve? Write the use of middleware technology in client/server system. 5+5



**BCA (Part II) EXAMINATION, 2009**  
**DATABASE MANAGEMENT SYSTEM**

Time allowed: Three Hours

Maximum Marks: 50

*Attempt any five questions. All questions carry equal marks.*

1. (a) What is data modeling? Discuss the various data modeling methods available.  
(b) What is data independence? How does the DBMS provide data independence? Discuss.
  
2. Prepare an E-R diagram, which documents the entities and relationships involved in the staff management and payroll for the employees working in a super market. Create a relational schema to hold information. Identify the table, perform normalization to make necessary assumption.
  
3. (a) Explain the following:
  - (i) Do Case . . . . . End Case
  - (ii) Browse
  - (iii) List various deletion operations. Explain any two.(b) Explain the following commands:
  - (i) Set filter
  - (ii) Set Clock
  - (iii) Set Relation to
  - (iv) Set Alternate
  - (v) Set Memo Width
  
4. (a) Define DDL, DML, and DCL with suitable example.  
(b) Describe the relational operators with an example for each:
  - (i) UNION
  - (ii) INTERSECTION
  - (iii) CARTESIAN PRODUCT
  
5. (a) Describe the problems that are associated with redundant data. Can data redundancies be completely eliminated? How?  
(b) How are the indexing and sorting handled in FoxPro? Justify your opinion which is the best.



6. Write a FoxPro program to input a sentence from keyboard. Print the total alphabet character in sentence, total words in sentence and print the reverse sentence. (Input: Believe In God)

Output: Total alphabet character: 12

Total word: 3

Reverse sentence: doG nI eveileB

7. Write short notes on the following:

- (i) Concurrency
- (ii) Multi-valued dependency

8. (a) Discuss the need for normalization, explain 1NF, 2NF, 3NF with suitable examples.  
(b) Define the integrity constraints, discuss various integrity constraints available in DBMS.

9. Describe the following:

- (i) Client/Server Architecture
- (ii) Serializability
- (iii) Authorization.







## BCA (Part II) EXAMINATION, 2009

### JAVA PROGRAMMING

Time allowed: Three Hours

Maximum Marks: 50

Attempt any **five** questions. **All** questions carry equal marks.

1. (a) What are unique advantage of an object oriented programming paradigm?  
(b) Explain, “write once and run anywhere” nature of java?
2. (a) What is the need of looping? Explain entry control and exit control loop in Java?  
(b) In what ways does a ‘switch’ statement differ from an ‘if’ statement? Explain with a suitable example?
3. Write short notes on the following:
  - (a) Constructor
  - (b) Garbage Collection
  - (c) Vector class.
4. (a) What is synchronization? When do we use it?  
(b) Write a java program to create a thread that displays odd numbers starting from 1 to 100.
5. Differentiate between with a suitable example:
  - (a) Method overloading and method overriding
  - (b) Instance variable and class variable
  - (c) Abstract class and an Interface
6. (a) What is an exception? Is it essential to catch all types of exceptions? Explain.  
(b) A random class is used for generation of random number in java. Write a code that generates a random integer number between variable ‘a’ and variable ‘b’?
7. (a) What is runnable interface? Explain with a suitable example?  
(b) Design an applet to display three buttons “Red”, “Green” and “Blue”. The color of the background changes according to the button pressed by the user.



8. (a) What is AWT? What are its components?  
(b) What is JDBC? What are its drivers? Explain in brief?
  
9. Write a program in java for matrix multiplication of 2x2 matrix.
  
10. Explain Briefly:
  - (a) CGI structure
  - (b) CORBA architecture
  - (c) API components.

