MASTER OF COMPUTER APPLICATION
Second Semester
Object Oriented Programming Using C++
(MCA-09)

Duration: 3Hrs.   **Full Marks: 70**

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.   **Marks: 50**

1. Answer any five questions from the following   **5×2=10**

a) What is the main advantage of passing arguments by reference?

b) When will you make a function inline? Why?

c) What is a class? How does it accomplish data hiding?

d) What is a constructor? How do we invoke a constructor function?

e) What is operator overloading? Explain.

f) What does inheritance mean in c++?

g) What is an exception? How is an exception handled in c++?

2. Answer any five questions from the following   **5×3=15**

a) What is a friend function? What is its use?

b) What are static data members and static member functions? Explain.

c) What do you mean by dynamic initialization of objects? Why do we need to do this?

d) What is a virtual base class? When do we make a class virtual?

e) What does polymorphism mean in c++ language? How is polymorphism achieved at

   i) compile time and ii) run time

f) What is a file mode? Describe the various file mode options available.

g) What should be placed inside a try and catch block? Explain.

3. Answer any five questions from the following   **5×5=25**

a) We know that a private member of a base class is not inheritable. Is it anyway possible for the objects of a derived class to access the private members of the base class? Explain.

b) What does the "current position" mean when applied to files? Write statements using seekg() to achieve the following.

   i) To move the pointer by 15 positions backward from the current position.

   ii) To go to the beginning after an operation is over.

   iii) To go backward by 20 bytes from the end.

c) Write a C++ program to write 10 student records into a file.

d) Write a program containing a possible exception. Use a 'try' block to throw it and a 'catch' block to handle it.

e) Explain with an example, how you would create space for an array of objects using pointers.

f) What are the different forms of inheritance? Give an example of each.

g) Explain how "runtime polymorphism" is achieved in C++ with an example.

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(The figures in the margin indicate full marks for the questions)

Duration: 20 minutes   **Marks – 20**

(PART A- Objective)

Choose (✓) the correct response(s) in each of the multiple choice questions:

1. Which allows you to create a derived class that inherits properties from more than one base class?
   A. Multilevel inheritance
   B. Multiple inheritance
   C. Hybrid Inheritance
   D. Hierarchical Inheritance

2. Which feature in OOP allows reusing code?
   A) Polymorphism
   B) Inheritance
   C) Encapsulation
   D) Data hiding

3. What does C++ append to the end of a string literal constant?
   A. a space A run-time error.
   B. a number sign (#)
   C. an asterisk (*)
   D. a null character

4. An array element is accessed using
   A. a first-in-first-out approach
   B. the dot operator
   C. a member name
   D. an index number

5. To hide a data member from the program, you must declare the data member in the _____ section of the class
   A. concealed   B. confidential
   C. hidden   D. private
   E. restricted

6. The function whose prototype is void getData(Item *thing); receives
    A.   a pointer to a structure
    B.   a reference to a structure
    C.   a copy of a structure
    D.   nothing

7. Null character needs a space of
    A.   zero bytes
    B.   one byte
    C.   three bytes
    D.   four bytes

8. The following statement where T is true and F is false T&&T||F&&T
    A.   is true
    B.   is false
    C.   is wrong
    D.   not applicable in C language

9. The standard input stream, which refers to the keyboard, is called
    A.   cin
    B.   cout
    C.   stin
    D.   stout

10. Elements in an array are identified by a unique _____
    A.   data type
    B.   order
    C.   subscript
    D.   symbol

11. The statement fwrite ((char*)&objl, sizeof(objl));
    A.   writes the member functions of objl to fl
    B.   writes the data in objl to fl
    C.   writes the member functions and me data of obj 1 to fl
    D.   writes the address of objl to fl

12. The body of a C++ function is surrounded by _____
    A.   parentheses
    B.   angle brackets
    C.   curly brackets
    D.   square brackets

13. Which of the following, if any, are valid names for variables?
    A.   class
    B.   friend
    C.   #OnHand
    D.   void
    E.   None of the above is valid names for variables

14. Which of the following concepts means determining at runtime what method to invoke?
    A. Data hiding
    B. Dynamic Typing
    C. Dynamic binding
    D. Dynamic loading

15. Which of the following is an abstract data type?
    A. int
    B. double
    C. string
    D. class

16. Which of the following term is used for a function defined inside a class?
    A. Member Variable
    B. Member function
    C. Class function
    D. Classic function

17. Which of the following concepts means wrapping up of data and functions together?
    A. Abstraction
    B. Encapsulation
    C. Inheritance
    D. Polymorphism

18. Which of the following functions are performed by a constructor?
    A. Construct a new class
    B. Construct a new object
    C. Construct a new function
    D. Initialize objects

19. Which of the following problem causes an exception?
    A. Missing semicolon in statement in *main()*
    B. A problem in calling function
    C. A syntax error
    D. A run-time error

20. Which one of the following options is correct?
    A. Friend function can access public data members of the class.
    B. Friend function can access protected data members of the class.
    C. Friend function can access private data members of the class.
    D. All of the above.

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