Write the following information in the first page of Answer Script before starting answer

ODD SEMESTER EXAMINATION: 2020-21

Exam ID Number_____

Course_____ Semester_____

Paper Code_____Paper Title_____

Type of Exam: _____ (Regular/Back/Improvement)

Important Instruction for students:

1. Student should write objective and descriptive answer on plain white paper.
2. Give page number in each page starting from 1st page.
3. After completion of examination, Scan all pages, convert into a single PDF, rename the file with Class Roll No. (2019MBA15) and upload to the Google classroom as attachment.
4. Exam timing from 10am – 1pm (for morning shift).
5. Question Paper will be uploaded before 10 mins from the schedule time.
6. Additional 20 mins time will be given for scanning and uploading the single PDF file.
7. Student will be marked as ABSENT if failed to upload the PDF answer script due to any reason.

BACHELOR of COMPUTER APPLICATION
THIRD SEMESTER
OBJECT ORIENTED PROGRAMMING WITH C++
BCA - 301

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

(PART-A: Objective)

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1×20=20***

1. The associability of which following operator is left to right in C++
- **a.** Unary operator
- **b.** Logical Not
- **c.** Array access operator
- **d.** Address of

2. Which of the following cannot be passed to the function in C++
- **a.** One
- **b.** Structure
- **c.** Array
- **d.** Header file

3. C++ actually supports following two complete dynamic allocation systems?
- **a.** One is defined by C++ and other not defined by
- **b.** One defined by C and one specific to C++
- **c.** Both are specific to C++
- **d.** Both of them are improvement of C.

4. Important advantages of using New and Delete operator in C++ is
- **a.** Allocation of memory
- **b.** Frees the memory previously allocated
- **c.** Initialization of memory easily
- **d.** Allocation of memory and frees the memory previously allocated

5. The programming languages C and C++ are not strongly typed languages because:
- **a.** C and C++ allows functions for which parameters are not type checked
- **b.** C and C++ allows functions for which parameters are type checked
- **c.** C and C++ allows functions for which parameters are not type checked and also the union types in these languages are not type checked.
- **d.** Union types in these languages are not type checked.

6. Enumeration is a process
- **a.** Declaring a set numbers
- **b.** Sorting a list of strings
- **c.** Assigning a list of legal values possible for a variable
- **d.** Sequencing a list of operators

7. Which of the statements are true?
- **i.** Function overloading is done at compile time.
- **ii.** Protected members are accessible to the member of derived class
- **iii.** A derived class inherits constructor and destructors.
- **iv.** A friend function can be called like normal function.

a. I, II, III
b. II, III, IV
c. I, III, IV
d. I, II, IV

8. Class C is derived from class B, which is derived from class A, all through public inheritance, then a class C member function can access

a. Protected and public data only in C and B

b. protected and public data only in C

c. private data in A and B.

d. protected data in A and B

9. output of the following will be

```
for (x=1, y=5; x+y<=10; x++)
{
   cout<< x<<y;
   y++;
}
```

a.
```
1 5
2 6
3 7
```

b.
```
1 5
2 6
3 7
4 8
```

c.
```
1 5
1 6
1 7
1 8
1 9
```

d.
```
2 5
3 5
4 5
5 5
```

10. A copy constructor is invoked when

a. A function returns a value

b. An argument is passed by value

c. A function returns by reference

d. None of these

11. A _____ is special method used to initialize the instance variable of a class.

a. Member function

b. Destructor

c. Constructor

d. Virtual function

12. The friend function are used in situation where

a. We want to have access to unrelated class

b. Dynamic binding is required

c. Exchange of data between classes to take place

d. None of these

13. Runtime polymorphism can be achieved by

a. Accessing virtual function through the pointer of base class.

b. Accessing the virtual function through the object

c. The derived class

d. None of these

14. What are the advantages of passing arguments by reference?

a. Changes to parameter values within the function also affect the original arguments

b. There is need to copy parameter values (i.e. less memory used)

c. There is no need to call constructors for parameters (i.e. faster)

d. All of the mentioned

15. Which of the following is the correct syntax of including a user defined header files in C++?

a. #include <userdefined.h>
b. #include <userdefined>
c. #include "userdefined"
d. #include [userdefined]

16. What is the use of this pointer?

a. When local variable name is same as member's name, we can access member using this pointer
b. To return reference to the calling object
c. Can be used for chained function calls on an object
d. All of these

17. If a data item is declared as a protected access specifier then it can be accessed

a. Anywhere in the program
b. By the base and derived classes
c. Only by the base class
d. Only by the derived class

18. if the variable count exceeds 100, a single statement that prints "Too many" is

a. if (count<100) cout << "Too many";
b. if (count>=100) cout << "Too many";
c. if (count>100) cout << "Too many";
d. None of these

19.
```
#include<iostream.h>
int main()
{
cout<<-1-2-1;
return 0;
}
```

a. Compilation error
b. Runtime error
c. 4
d. -4

20. If 'y' is of integer type then the expressions

3* (y − 8)/9 and (y − 8)/9 * 3

a. must yield the same value
b. must yield different values.
c. may or may not yield the same value
d. none of the above

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PART-B : Descriptive

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. 'C++ programming concept is better than C programming concept'- Explain it. **10**

2. Explain the advantages of pointer use in programming. Under which circumstances use of pointer is indispensable. How can pointer is useful in runtime memory management. **10**

3. Consider a class 'Myclass' having constructors which allow definitions of objects in the following form: **10**
Myclass c1;
Myclass c2="MNOP";
Myclass c3=name;
Write a program to model Myclass and manipulates its objects. And please remember that computer have less memory space.

4. What is abstract class? Write a program having 'Student' as an abstract base class and create derived classes such as Science, Arts, Commerce, Engineering, Medical etc. from the student class. Create their objects and process them. **2+8=10**

5. **a.** What is function over ridding? What are the advantages and disadvantages of it ? How can w write programming statement not using function over ridding? **6+4=10**

b. Explain-" this pointer is a powerful tool of C++ programming"

6. Mr X is a business man. He started his business with stationary items. Gradually he expand his business with grocery items and cloths. As programmer how can you represent his business model. What are features helps you to represent his model. **10**

7. Design classes such that they supports the following statements: **10**
Rupees R1, R2; Doller D1, D2;
D1=R1;
R2=D2;
Write a complete program which does such conversions according to world market value.

8. **a.** Admission process of an educational institution is currently going on. Write a C++ program to count no. of students after admission of every student with a features of Object Oriented Programming. **7+3=10**

b. Why is the friend function not allowed to access members of a class directly although its body can appear within the class body?

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