2017

BCA

4th Semester Examination

C++ LAB

PAPER—2296 (SET-3)

(Practical)

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer any *two* questions (*on Lottery Basis*) :   2×25

1. Define a class to represent a student (Roll, Name, Course, Semester, College). Write a C++ program to read student details and display those information by invoking member functions. Execute the program and show input-output.

2. Define two functions, to find greatest common divisor, with same name – GCD : one with two parameters, and

the other with three parameters. Write a C++ program to use the function overloading – once to read 2 numbers and find their gcd, next to read 3 numbers and find their gcd. Execute the program and show your input, output.

3. Define a class to represent an UG department (dept. name, year of establishment, Honours/Pass, intake capacity, No. of faculty members). Write a C++ program to use this class and read details about three departments by invoking member functions. Display only the details of oldest department.

4. Define a class to represent time (Hour, Minute, Second) in 24-hour format e.g., 17 : 35 : 56. Write a C++ program to read time of three events in a day and find which event was the earliest and display its time. Execute and display the input-output.

5. Write a C++ program to define a class to represent a triangle. Read the three and points defining a triangle and compute the area of this triangle. Execute your program and display the result.

6. Define a class marksheet with member variables Math, Stat, Computer, Bio marks and total marks, and a static member variable letter-mark to keep count of total

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number of letter marks (marks ≥ 80) secured by all students. Execute the program and read marks for three students and display total number of letter marks obtained in any subject by these three students.

7. Define two class – one for fruit, another for sweet. Class fruit has a member variable fprice, and class sweet has a member variable price. Define a friend function to both these classes to compute the lower price of fruit and sweet object. Write a C++ program for this and display your input-output.

8. Define a class logic-gate with member variables name, fan-in (no. of inputs, max. allowed), fan-out (max. no. of signals driven by output). Write a C++ program to initialize the logic-gate object using constructors. Display the gate specifications and display appropriate message if fan-out>fan-in.

9. Define a class medicine with member variables name, type (tablet, capsule, syrup, other), fprice, weight, expiry date. Write a C++ program to use this class and initialize three medicines with constructors. Execute the program and display appropriate message if any medicine has expired. Also display the medicine details.

10. Write a C++ program to define a class to represent a matrix and overload + operator to add two matrices of same order. Execute the program and display your result.

11. Write a C++ program to define a class to represent a square matrix and overload * operator to multiply two square matrices. Execute your program and show the output.

12. Write a C++ program to overload + operator to concatenate two strings. Execute your program and display the output.

13. Write a C++ program to copy a text file into another file (read from source file and write the same into destination file) by using iostream header file. You should not use library function of stdio.h header file.

14. Write a C++ program to demonstrate single inheritance.

15. Write a C++ program to demonstrate multi-level inheritance.

16. Write a C++ program to demonstrate hybrid inheritance.

17. Define a base class with a number variable int num[6] and a virtual function max-min( ). Derive two classes-Maximum and minimum from this base class.

max-min member function returns maximum element of num[6] in Maximum object, whereas this max-min returns minimum element of num[6] in Minimum object.

Write a C++ program for this to demonstrate polymorphism.

18. Write a C++ program to define a class person with member variables name, age, gender, mobile no. Use member functions to read these and display these values. Whenever you give a mobile number that does not contain 10-digits catch the exception and generate appropriate menage.

19. Write a C++ program using inline function to compute GCD of two numbers. Execute the program and show your input and output.

20. Define a class to represent a Book (book title, author name (s), edition, publisher, price). Define the member functions of this class outside the class. Write a C++ program to read details of two books and display these information by using class member functions. Execute the program and show input-output.

21. Define two functions with some name—MIN : one with 3 parameters to find minimum of 3 numbers, another with

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4 parameters to find minimum of 4 numbers. Write a C++ program to use these two functions by function overloading. Execute the program and show your input-output.

22. Define a class to represent Date (date, month, year). Write a C++ program to read two dates and to compute the difference between them in terms of number of days. Execute the program and show your input-output.

23. Define a class-Item with member variables, weight, price, total weight, total cost. Total weight and total price are static member variables. Write a C++ program to read few item's weights and prices. Calculate total cost and total weight of these items.

24. Define a class student with member variables, Roll, Name, Subject, Date of birth. Write a C++ program to define array of student objects and read detail of each student and display these information. Execute the program and show the input-output.

25. Define a class marks with member variables, paper 1, paper 2, paper 3 marks and a member friend function average to compute mean of these three papers. Write a C++ program to read marks of a student and invoke the friend function to compute and display the average marks.

26. Define a class – baby with members – name, date of birth, mother's name, gender, weight, and a constructor. Write a C++ program to initialize member variables during object declaration for two children. Display a caution message if weight of any baby is less than 2 kg.

27. Write a C++ program to define a class representing a tree (tree-id, name, type – flower/fruit/other, age). Write a C++ program to use constructor to initialize the tree objects with details of four trees. Also display appropriate message stating how many of the trees are of flower, or fruit or of other type.

28. Write a C++ program to overload $\wedge$ operator to compute integer power (i.e., $a \wedge b = a^b$). Execute the program and display the input-output.

29. Write a C++ program to define a class to represent a vector (array) and overload + operator to add one vector with the another vector. Execute the program and show input-output.

30. Write a C++ program to overload unary – operator to transpose a square matrix. Execute the program and show input-output.

(Turn Over)

31. First create two text files using an editor. Then Write a C++ program to concatenate these two existing text file to create a new file using iostream header file. You should not use stdio.h library functions.

32. Write a C++ program to demonstrate multiple inheritance.

INSTRUCTIONS

Distribution of Marks —

Practical Note Book	:	**05**
Viva-Voce	:	**15**

Experiments —

Any two	:	**50**
Internal Assessment	:	**30**
TOTAL	:	**100**