UG EVEN SEMESTER (CBCS) EXAMINATION, SEPTEMBER - 2021

COMPUTER SCIENCE

4th Semester

COURSE NO. MCSCC - 404

(Object Oriented Programming with C++)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer any five questions, taking one from each unit)

UNIT - I

1. (a) What is object-oriented programming? How is it different from procedure-oriented programming? 1+5

   (b) Explain the following terms with examples: 2×4=8

   (i) Objects and Classes.

   (ii) Inheritance and Polymorphism.

2. (a) What are the advantages of an object-riented programming paradigm? 5

   (b) Write a note on object oriented modelling ? 5

UNIT - V

9. (a) What is the difference between opening a file with a constructor function and opening a file with open() function? When is one method preferred over the other? 6

   (b) What is a file mode? Describe the various file mode options available. 6

   (c) Both ios::ate and ios::app place the file pointer at the end of the file (when it is opened). What then, is the difference between them? 2

10. (a) Write statements using seekg() to achieve the following: 4

   - (a) To move the pointer by 15 positions backward from current position.
   - (b) To go to the beginning after an operation is over.
   - (c) To go backward by 20 bytes from the end.
   - (d) To go to byte number 50 in the file.

   (b) A file contains a list of telephone numbers in the following form

   Bibek 23456

   Shivam 9876

   …… ……

   the names contain only one word and the names and telephone numbers are separated by white spaces. Write program to read this file and output the list in two columns. The names should be left justified and the numbers should be right justified. 10

(c) How are data and functions organized in an object-oriented program? 4

UNIT - II

3. (a) Write a C+ + program that will ask for a temperature in Celsius and display it in Fahrenheit. 5

(b) Write a function using reference variables as arguments to swap the values of a pair of integers. 5

(c) Describe the major parts of a C++ program. 4

4. (a) Write a program to print the following output using for loops. 7

```
#     #
#     #
#####
#     #
#     #
```

(b) Write a function power() to raise a number b to a power n. The function takes a double value for b and int value for n, and returns the result correctly. Use a default value of 2 for n to make the function to calculate squares when this argument is omitted. Write a main that gets the values of b and n from the user to test the function. 7

UNIT - III

5. (a) Define a class to represent a bank account. Include the following members:

Data members

i. Name of the depositor

ii. Account number

iii. Type of account

iv. Balance amount in the account

Member functions

v. To assign initial values

vi. To deposit an amount

vii. To withdraw an amount after checking the balance

viii. To display name and balance

Write a main program to test the program. 10

(b) What do you understand by operator overloading? Explain. 4

6. We have two classes X and Y. If a is an object of X and b is an object of Y and we want to say a = b; What type of conversion routine should be used and where?
Write a C++ program to illustrate the conversion. 14

UNIT - IV

7. What do you understand by Function overloading or Functional polymorphism? Explain with the help of a program. 2+12=14

8. Design three classes student, test, and results, where result is inherited from test and test is inherited from student. Write possible functions to initialize the values. Also write a main function for execution by creating objects. 14