

S.E. (Computer) Semester-III (Revised Course 2019-20)
EXAMINATION AUGUST 2021
Object Oriented Programming System

[Duration : Two Hours]

[Total Marks :60]

Instructions:

1. Answer THREE FULL QUESTIONS with ONE QUESTION FROM EACH PART.
2. Make necessary assumptions wherever necessary.

PART A

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| Q.1 | a) Differentiate between call by Value and call by reference using examples. | 6 |
| | b) Explain how a one-dimensional array can be passed to a function. | 6 |
| | c) What are constructors? How are they different from member functions? | 4 |
| | d) What is a class? How objects of a class are created? | 4 |
| | | |
| Q.2 | a) Explain the following: | 6 |
| | i) Default arguments | |
| | ii) Function prototype | |
| | iii) Inline functions. | |
| | b) Explain dynamic memory allocation in C++. Write a C++ program demonstrating array of pointers to objects. | 6 |
| | c) Consider a bank Account class with Acct no. and balance as data members. Write a C++ program to implement the members functions display () and withdraw (). Also write default and copy constructor | 8 |
| | | |
| Q.3 | a) Write a C++ program to overload the subscript [] operator. | 6 |
| | b) Write a C++ program to find the maximum of two integer data members belonging to two different classes. | 6 |
| | c) What are reference variables? | |
| | d) Explain the following pointer declarations in C++ | 4 |
| | i) &i | 4 |
| | ii) *(&j) | |
| | iii) *j | |
| | iv) **j | |

PART B

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| Q.4 | a) Explain the concept of virtual functions using an example. | 6 |
| | b) Write a C++ program to handle array out of bounds exception. | 6 |
| | c) Write a C++ program to create base class called STUDENT (name, reg no, age) and using inheritance create derived classes UG student and PG student having field such as semester, fee and stipend. Enter data of 5 students. Find average age semester wise all UG and PG students separately. | 8 |
| | | |
| Q.5 | a) Write a C++ program to open a file in writing and reading mode. After writing employee | 6 |

name and phone number entered by the user to a file the program reads information from the file and outputs it into the screen.

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| b) | Write a note components of STL. | 6 |
| c) | Explain the following steam error states. | |
| | i) good bit | 8 |
| | ii) bad bit | |
| | iii) fail bit | |
| | iv) eof bit | |
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| Q.6 | a) write a C++ program to perform liner search using template function. | 6 |
| | b) Explain the following with respect to strings: | |
| | i) At () | 6 |
| | ii) Capacity () | |
| | iii) Append () | |
| | iv) String (const char*str) | |
| | v) Find_first_of () | |
| | vi) Substr () | |
| | c) Explain exception handling in C++. Demonstrate the same to handle divideByZero error using a function that will perform the division operation. | 8 |

PART C

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| Q.7 | a) Write a C++ program demonstrating the use of 'this' pointer. | 6 |
| | b) Explain how you can create user defined manipulators with an example. | 6 |
| | c) Given an example to explain what is recursive function. What are the advantages and disadvantage of recursive functions? | 8 |
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| Q.8 | a) Write a C++ program to simulate all operations on stack. | 6 |
| | b) Write a statement for each of the following | 6 |
| | i) Print 4.8797 in left justified format and 2 digits after the decimal point using ios member function. | |
| | ii) Print ***** 1.230000 using manipulators. | |
| | iii) Print "Hello" left justified in a field width of 15 and fill '*' character. | |
| | c) What are functions? What is function overlanding? Write a C++ program to find the minimum of 2 integers, 2 floats using concept of function overlanding. | 8 |