

COMPUTER SCIENCE AND APPLICATION

PRE-FINAL EXAMINATION, 2012-22 (H.S. 2nd YEAR)

Full Marks: 70 Time: Three hours

1. Answer the following questions: (any TEN) (1x10= 10)

- a) What is a constructor in C++?
- b) What is inheritance in C++?
- c) What do you mean by Database Management System (DBMS)? Give examples.
- d) What is a primary key?
- e) When do we use CREATE TABLE command in SQL?
- f) What are data types in C++?
- g) What is a reference variable in C++?
- h) What is a logic gate?
- i) What is a destructor in C++?
- j) What do you mean by variables in C++?
- k) Name the three access specifiers used in a class.
- l) What is string.h header file used for in C++?

2. Answer the following questions: (any TWELVE) (2X12= 24)

- a) State DeMorgan's law in Boolean Algebra?
- b) What do you mean by class and object in C++?
- c) What is meant by member variables and member functions in C++?
- d) Distinguish between ofstream and ifstream classes?
- e) What is an array? How do you declare an array in C++?
- f) Differentiate between one dimensional array and two dimensional array?
- g) Differentiate between Call by Value and Call by Reference?
- h) What do you mean by function overloading in C++?

- i) What is a pointer?
- j) What is the difference between public and private members of a class?
- k) How while loop is different from do while loop?
- l) Define stack and queue?
- m) Describe the two operations that can be performed on a stack?
- n) What is INT and FLOAT data type in C++?

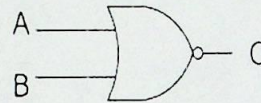
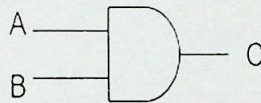
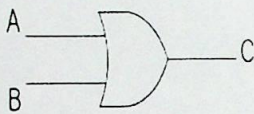
3. Answer the following questions: (any SEVEN)

(3X7= 21)

a) Convert the following infix expression into postfix.

$$(A * B - (C - D)) / (E + F)$$

b) Identify each of the following Gates by name and construct their respective truth tables.



c) Draw logic circuit diagram for the following expression.

$$Y = ab + \bar{b}c + \bar{c}\bar{a}$$

d) Verify the following expression using truth table.

$$X(Y+Z) = XY + YZ$$

e) Define default constructor, parameterized constructor and copy constructor.

f) Write a C++ program to add two numbers.

g) Write the necessary SQL commands to create a table (STUDENT) with the following attributes: Roll_No, Name, Address. Set Roll_No as the primary key of the table.

h) Describe the mechanism of accessing member variables and member functions in the following cases: i) Inside the main function, ii) Inside a member function of the same class.

i) What do you mean by user defined function in C++? Define return type of a function.

4. Answer the following questions: (any THREE)

(5X3= 15)

a) Write a C++ program to swap two numbers using pass by reference.

- b) Explain different types of inheritance available in C++.
- c) Write a C++ program showing the use of constructor and destructor.
- d) Explain the visibility modes available in C++ with examples.
- e) Write a C++ program to create a new file and write some lines to it.
- f) Write a program to demonstrate function overloading in C++.