Paper Code : CSCHCT 11

M.Sc. I Semester (CBCS) Degree Examination, June/July 2023
Subject : COMPUTER SCIENCE
Paper : Digital Logic

Time : 3 Hours | Max. Marks : 80

Instructions : *i) Section – **A** is **compulsory**.*
*ii) Answer **any 5** questions from Section – **B**.*

SECTION – A (10×2=20)

1. a) Define registers. **2**
   b) What is complement of a number ? Give an example. **2**
   c) Define logic gates. **2**
   d) What is AND-OR-INVERT method ? **2**
   e) Define equivalence functions. **2**
   f) Define flips flops. **2**
   g) Define sequential circuits. **2**
   h) Define execution table. **2**
   i) Define decimal data. **2**
   j) Define instruction codes. **2**

SECTION – B

2. a) Explain different number systems with an example. **6**
   b) Explain Boolean theorem and its properties with an example. **6**

3. a) Convert the following pairs of decimal numbers into 5 bit signed 2's complement binary number and add them **6**
      a) –5 and 7
      b) –3 and –8
      c) 10 and –13
   b) Simplify the following Boolean expression in SOP and POS.
      $F(A, B, C, D) = \Sigma(0, 1, 2, 5, 8, 9, 10)$ **6**

P.T.O.

4. a) Explain NAND and NOR implementation. 6
   b) With a neat diagram explain combinational circuits. 6

5. a) Explain subtractors with truth table. 6
   b) Explain code conversion with an example. 6

6. a) Explain J-K and D-flip flops. 6
   b) Explain analysis of clocked sequential circuits. 6

7. a) With a neat diagram explain read only memory. 6
   b) Explain design of counters. 6

8. a) Explain 4 bit shift registers. 6
   b) Explain synchronous counter with a neat diagram. 6

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Paper Code : CSCHCT 12

M.Sc. I Semester (CBCS) Degree Examination, June/July 2023
Subject : COMPUTER SCIENCE
Paper : Object Oriented Programming Using C++

Time : 3 Hours | Max. Marks : 80

Instructions : *i) Section – **A** is **compulsory**.*
*ii) Answer **any five** questions from Section – **B**.*

SECTION – A

1. Answer the following questions. **(10×2=20)**
   a) Define object-oriented programming.
   b) Define polymorphism.
   c) What do you mean by a token ?
   d) Compare and contrast the variable and constants in C++.
   e) What is the need of declaring a member of a class ?
   f) Define friend function.
   g) Differentiate between constructor and destructor.
   h) What is inheritance ? What are the types of inheritance ?
   i) What is the need of abstract class in C++ ?
   j) How string is used in C++ ? How can we create string object ?

12

SECTION – B

2. a) Describe the structure of a C++ program with an example. **6**
   b) Explain the features of object-oriented programming. **6**

3. a) What are the different ways to define member function of a class ? What is the role of scope resolution operator in the definition of member function ? **6**
   b) With an example explain default constructor and parameterized constructor in C++. **6**

4. a) What do you mean by operator overloading ? Write a program to overload + operator to concate two strings. **6**
   b) With an example explain the use of Inline function. **6**

P.T.O.

5. a) Explain the various types of inheritance with example. **6**

   b) Write a C++ program to demonstrate the use of pure virtual function with the use of base and derived classes. **6**

6. a) Explain the role of Seekg(), Seekp(), tellg(), tellp() function in the process of random access in a file. **6**

   b) Write a program in C++ to extract a character from a string. **6**

7. a) What is exception handling ? What are the advantages of using exception handling mechanism ? **6**

   b) When do we need multiple catch blocks for a single try block ? Illustrate with an example. **6**

8. Write notes on **any two** of the following. **(2×6=12)**

   a) 'this' pointer.

   b) Encapsulation and data hiding.

   c) Instance variables.

   d) File stream.

Paper Code : CSCHCT 13

M.Sc. I Semester (CBCS) Degree Examination, June/July 2023
Subject : COMPUTER SCIENCE
Paper : Programming in VB.NET

Time : 3 Hours | Max. Marks : 80

Instructions : *i) Section – **A** is **compulsory**.*

*ii) Answer **any five** questions from Section – **B**.*

SECTION – A **(10×2=20)**

1. a) What is IDE ? Give example.
   b) How are comments used in VB.NET ?
   c) Differentiate between combo box and list box.
   d) What is the purpose of CLR ? Discuss briefly.
   e) Explain the purpose of solution explorer in visual studio.
   f) Give the syntax of function statement.
   g) List any four logical operator available in VB.NET.
   h) What are the components of .NET Framework ?
   i) What is the purpose of slider control and spin control ?
   j) What is the difference between state and session ?

SECTION – B **(5×12=60)**

2. a) Write a short note on history and features of .NET Framework. **6**
   b) What is an input box ? Write a suitable code snippet to demonstrate the utility of input box function. **6**

3. a) Explain the syntax of while...End loop and use this loop to find the sum of first N natural numbers. **6**
   b) What is an array ? What are the benefits of arrays ? How arrays are created and accessed in VB.NET ? **6**

P.T.O.

4. a) Explain any three string functions with the help of suitable code snippets. 6

   b) Define event driven programming. Write a procedure of adding events. 6

5. a) Explain the architecture of ADO.NET. 6

   b) How provider class is used ? Explain. 6

6. a) Explain data adapter for data navigation and data manipulation. 6

   b) Explain data grid view control with ADO.NET data source. 6

7. What are the components of development environment of VB.NET ? Explain the purpose of each component. 12

8. Write a short note on the following. 12

   a) Data reader

   b) Data adapter

   c) Data set.

Paper Code : CSCSCT 11

M.Sc. I Semester (CBCS) Degree Examination, June/July 2023
Subject : COMPUTER SCIENCE
Paper : Operating System Principles

Time : 3 Hours | Max. Marks : 80

Instructions : *1) Section – **A** is **compulsory**.*
*2) Answer **any five** questions from Section – **B**.*

SECTION – A

1. Answer the following questions : **(10×2=20)**
   a) What is Direct memory access ?
   b) Define paging.
   c) Define operating system.
   d) What is critical section ?
   e) Define process.
   f) Define multiprogramming.
   g) Explain the applications of OS.
   h) State any two advantages of virtual memory management.
   i) Define system generation.
   j) Define virtual machine.

SECTION – B

2. a) Explain the basic functions of operating system.
   b) What is system call ? Explain. **(6+6=12)**

3. a) Write briefly about process states.
   b) What is process scheduling ? Explain the round robin process scheduling. **(6+6=12)**

4. a) Explain system design and implementation.
   b) Explain threading model in details. **(6+6=12)**

P.T.O.

5. a) Explain multiprocessing.
   b) Explain the various services provided by operating system. **(6+6=12)**

6. a) Explain symmetric multiprocessing.
   b) Explain file system mounting. **(6+6=12)**

7. a) Write a note on Deadlock.
   b) Write a short note on layered approach. **(6+6=12)**

8. Write a note on **any two** of the following : **(2×6=12)**
   a) Scheduling
   b) Memory management
   c) Assembler
   d) Thrashing.