Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 20366

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Fourth Semester

Electrical and Electronics Engineering

CS 6456 — OBJECT ORIENTED PROGRAMMING

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering)

(Regulations 2013)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define pointer. Give example.
2. What is an abstract data type? Give example.
3. Why do we need the preprocessor directive # include <iostream> in a C++ program?
4. What is data abstraction? Give example.
5. How do templates benefit a C++ developer?
6. Define inheritance.
7. What is java virtual machine?
8. List the logical operators in java.
9. What is package in java?
10. Define multithreading.

PART B — (5 × 13 = 65 marks)

11. (a) Outline the features of the object oriented programming paradigm. (13)

Or

(b) Write a C++ program to store 'n' names in an array name, sort the names in alphabetic order and print the result. Use classes and member functions. (13)

12. (a) What is a constructor? Explain the different types of constructors in C++ with an example. (13)

Or

(b) (i) Write a C++ program to accept a square matrix, find the transpose and print the result. Use classes and member functions. (5)

(ii) What is polymorphism? Explain the different types of polymorphism in C++ with an example. (8)

13. (a) (i) Explain templates in C++ with an example. (8)

(ii) Present an overview of exception handling in C++. (5)

Or

(b) Explain single inheritance and multiple inheritance in C++ with an example. (13)

14. (a) (i) Write a java program to print the first 'N' prime numbers. (5)

(ii) Write a java program to perform computation of sin (x) as given below : (8)

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \frac{x^9}{9!} \ldots\ldots \text{N terms.}$$

Or

(b) Explain the types of inheritance in java with suitable examples.

15. (a) (i) Explain interfaces in java with an example. (8)

(ii) Write a java program to accept a string, count the number of vowels in the string and print the result. (5)

Or

(b) What is exception handling? Discuss exception handling in java with an example. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Consider a book shop which sells both books and video-tapes. Create a class media that store the title and price of a publication. Create two derived classes, one for storing the number of pages in a book and another for storing the playing time of a tape. Write a function display () is used in all the classes to display the class contents.

Note : that the function display () has been declared virtual in media, the base class. Write a C++ program for the above. (15)

Or

(b) (i) Write a java program to sort an array of 'N' numbers in ascending order. Use classes and methods. (8)

(ii) Write a java program to accept a string, reverse the string, check whether the string is a palindrome and print the result. Use classes and methods.

Note : An example for palindrome : consider the string 'MALAYALAM' when you reverse the string you get back the original string 'MALAYALAM' and hence the string "Malayalam" is a palindrome. (7)