PG Odd Semester (CBCS) Exam., December—2016

MATHEMATICS

(1st Semester)

(Theory)

Course No. : MTM–105 (C)

(Computer Programming : C & C++)

Full Marks : 45
Pass Marks : 18

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. (a) What is an array variable? How does an array variable differ from an ordinary variable? 1+2=3

(b) Determine which of the following are valid identifier : 2

(i) name 2

(ii) $ tax

(iii) name_address

(iv) 2016–ares

(c) Name and describe the four basic types of constant in C. 2

(d) What are the purposes of scanf printf functions? How are these used within a C program? 2

2. (a) What is meant by looping? Describe two forms of looping. 3

(b) Write a program in C to sort the numbers using bubble sort. 4

(c) What are the uses of break and continue statements? 2

UNIT—II

3. (a) What is a function in C? State three advantages of the use of functions. 1+2=3

(b) What is recursive function? Write a program in C to find the factorial of a number using recursive function. 1+3=4

(c) Explain the concept of call-by-value and call-by-reference parameters. 2

4. *(a)* What is structure in C? Write the syntax for the structure declaration. 2+1=3

(b) How is a pointer variable declared? What is the purpose of the data type included in the declaration? 1+1=2

(c) What is the primary advantage in using a data file? Summarise the rules governing the use of the fopen function. 2+2=4

UNIT—III

5. *(a)* What is object-oriented programming? What are the common characteristics of object-oriented programming? 2+3=5

(b) What are the uses of cin and cout functions? 2

(c) What is type conversion? Explain with examples. 2

6. *(a)* What are constructor and destructor? Give three differences between constructor and destructor. 2+2=4

(b) What are the disadvantages of object-oriented programming? 3

(c) Write a program in C++ to find the roots of a quadratic equation. 2

UNIT—IV

7. *(a)* Write a short note on inheritance. 4

(b) What is operator overloading? Write a program in C++ to overload the operator '+' to perform '–' operation. 1+4=5

8. *(a)* Define nested class and local class with examples. What are the restrictions on local class? 2+3=5

(b) Explain the following terms with examples : 4

data member, member function, access specifiers, object of a class

UNIT—V

9. *(a)* What is a function template? Write the general syntax to create a function template. Explain by writing one program. 1+1+3=5

(b) What are file modes in C++? Describe various file mode options available in C++. 1+3=4

10. *(a)* What are exceptions? Explain the exception handling models of C++ with various constructs supported by it. 2+3=5

(b) What is virtual function? Write down the rules for defining a virtual function. 1+3=4

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