2018

MATHEMATICS
MAT 305

COMPUTER PROGRAMMING IN C
Full Marks : 60
Time : 3 hours

The figures in the margin indicate full marks for the questions

All questions are compulsory

1. (a) Define algorithm. Draw the flowchart to find the area and circumference of a circle of radius r.   5

   (b) What do you mean by programming ? Mention the commonly used programming techniques. What is the difference between algorithm and flowchart ?   5

2. Answer any four   5×4=20

   (a) Convert the mathematical equations into C expressions

   $$\sin\left(\frac{a}{\sqrt{x^2 + y^2 + z^2}}\right); \ z = |x| + \frac{\sin \omega t}{a+b}; \ y = \cos\left(\frac{\omega \pi}{t}\right);$$

   $$e^{x+y} - \sin\left(\sqrt{|x + ny|}\right) + \log 2a$$

   (b) Define nibble and byte. What is a variable ? How are the variables declared in C ?

   (c) How does x++ differ from ++x ? Explain ternary operator. What is string constant ?

   (d) What is an operator and operand ? Discuss about increment and decrement operator in C.

(e) Define assignment statement. What is the difference between 'a' and "a" in C ? How can precision be specified in printf function ?

3. Answer any four   5×4=20
   (a) What is if else statement ? Describe with an example.
   (b) Give the general syntax of switch statement in C. Give differences between while and do while statement.
   (c) Write a C program to find the sum of all odd integers between 1 and n.
   (d) Write a C program to check whether the given number n is a prime number.
   (e) What is the use of break and continue statement ? Write a C program to generate Fibonacci series.

4. Answer any two   5×2=10
   (a) Define global variable. What is meant by recursion ? Explain the concept and use of type void.
   (b) What is a static variable and when should it be used ? Differentiate built-in functions and user defined functions.
   (c) Discuss the syntax of array in C. What is an array variable ? How does it differ from an ordinary variable ?

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