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MATHEMATICS

(Major)

Paper : 6.3

(Computer Programming in C)

Full Marks : 40

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer as directed (any *six*) :   1×6=6

   (a) A hexadecimal number is preceded
       by ____.

                                   (Fill in the blank)

   (b) Mention the basic data types used in
       C language.

   (c) For 9% 4 the output is ____.

                                   (Fill in the blank)

   (d) Which header file has to be included to
       use clrscr ( )?

(*Turn Over*)

(e) Using what other statement can you avoid multiple nested if conditions?

(f) The ____ statement is used to transfer the control to the beginning of the loop.

(Fill in the blank)

(g) Conditional operator is a ternary operator.

(Write True or False)

(h) What is the number of elements in the array float a[5][6]?

2. Answer any *two* questions : 2×2=4

(a) What is casting? Give an example.

(b) What is the purpose of scanf ( ) function? Explain with example the syntax of scanf ( ).

(c) Distinguish between auto and register storage classes.

3. Answer any *two* questions : 5×2=10

(a) Draw a flowchart to generate and print the Fibonacci series 0 1 1 2 3 5 ··· n.

(Continued)

(b) Let $a=13$ whose binary equivalent is 00001101 and $b=6$ whose binary equivalent is 00000110. What will be the results of the following bitwise operations?

$$a << b, a >> b, \sim a, a \mid b \text{ and } a \& b$$

(c) What is meant by a recursive function? Using recursive function, write a C program for computing the value of x^n for given values of x and n.

4. Answer any *two* questions : 5×2=10

(a) Explain with example 'for' loop, 'while' loop and 'do-while' loop used in C.

(b) Write a C program to find the trace of a given square matrix of order $n \times n$.

(c) Write short notes on machine-level language, assembly language and high-level language.

5. Answer any *two* questions : 5×2=10

(a) Write the general syntax of the nested if-else statement and switch statement.

(Turn Over)

(b) Discuss the following operators with examples :

   (i) Conditional operator

  (ii) Relational operator

 (iii) Logical operator

(c) Discuss the uses of goto statement, continue statement and break statement.

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