2017

MATHEMATICS

(Major)

Paper : 6.3

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) ROM is a temporary storage medium.

(Write True or False)

(b) High-level languages are otherwise termed as —— generation languages.

(Fill in the blank)

(c) What is a flowchart?

(d) An identifier/a variable can begin with_ (underscore).

(Write True or False)

(e) What is a string constant?

(f) What is a pointer?

(g) If a is an integer variable, then $a = \frac{7}{2}$ will return the value ——.

(Fill in the blank)

(h) Mention any two reserved words.

2. Answer any *two* questions : 2×2=4

(a) Determine the value of the logical expression $b > c \;\&\&\; c < 0 \;||\; a > 0$ for $a = 5$, $b = 10$, $c = -6$.

(b) What is an operating system? Mention any two operating systems commonly used.

(c) Give the equivalent C expression for

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

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

(a) Write an algorithm and draw the flowchart to find the sum and product of three given numbers.

(b) What is a variable? What are the basic data types? How does the type float differ from double in C language?

(c) How does $x++$ differ from $++x$? Explain the ternary operator.

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

(a) Give the general syntax of the if-else statement. Use it to write a C program to find the biggest of three given numbers.

(b) Discuss the use of break and continue statements with examples.

(c) Using switch statement, write a C program to find the value of y :

$$y = \begin{cases} 1+x & \text{when } n=1 \\ 1+\dfrac{x}{n} & \text{when } n=2 \\ 1+x^n & \text{when } n=3 \\ 1+nx & \text{when } n>3 \text{ or } n<1 \end{cases}$$

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

(a) Differentiate between built-in-functions and user-defined functions. Give the form of function declaration.

(b) Write a C program to add two matrices of order $m \times n$.

(c) Using recursive function, write a C program to display the first n terms of the Fibonacci series.

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