

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

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

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 :

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

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.
