



APRIL/MAY 2019

**MPH43B — PROGRAMMING IN
C AND MATLAB**

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL the questions.

1. (a) Describe about the structure of a C program.

Or

- (b) Explain how can you assign values to variables.

2. (a) (i) What is an operator? (2)
(ii) With an example, discuss about the conditional operator. (4)

Or

- (b) Give the C expression for algebraic expressions.

(i) $(m + n)(x + y)$

(ii) $(3x^2 + 2x + 1)$

(iii) $\frac{ab}{c}$

(iv) $a \times b - c$.

(4 × 1½ = 6)

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3. (a) (i) Give the general form, flow chart for the simple if statement. (4)
 (ii) Illustrate with an example. (2)

Or

- (b) (i) When Do statement is used? (2)
 (ii) With general form and example, explain Do Statement. (4)
4. (a) Write a C program for 2×2 matrix addition.

Or

- (b) Write a C program for evaluating
 $I = \int_4^{5.2} \log_3 x \, dx$ using Simpson's one - third rule.
5. (a) (i) What is a script file? (2)
 (ii) Give a note on it. (4)

Or

- (b) (i) Give the general formal for differentiation and explain. (2)
 (ii) Write a MATLAB program for $\left| d(4x^3 e^{x^3}) \right|$ differentiation and check the answer with $x = 2$. (4)



SECTION B — ($3 \times 15 = 45$ marks)

Answer any THREE questions.

6. (a) Define : Constants in C. (2)
 (b) With valid examples, write about integer, real, single character, strings, back slash character constants. ($3 + 3 + 1 + 3 + 3$)
7. (a) What is an array? (2)
 (b) Explain the declaration and initialisation of a two - dimensional array. (6)
 (c) Explain it with an example. (7)
8. (a) What is the significance of switch statement over other statements? (2)
 (b) Give the general form and flowchart of switch statement and explain. (7)
 (c) Explain it with an example. (6)
9. Write a C program to solve $y' = x + y$, $y(0) = 1$ for $x = 0.0$ (0.2) (1.0) using Euler's method.
10. Write a note on simple $x - y$ plots.