

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Describe the basic computer organization with neat diagram. (10)
(ii) Draw the flowchart to solve the quadratic equation. (6)

OR

- (b) (i) Explain the various generations of computers. (8)
(ii) What is pseudo code ? Explain its guidelines and benefits. (8)

12. (a) (i) Explain the different types of operators available in C. (10)
(ii) Discuss the basic data types in C. (6)

OR

- (b) (i) Describe the various input and output statements in C with suitable examples. (10)
(ii) Write a C program for the following series : (6)
 $1 + 2 + 3 + 4 + \dots + n$

13. (a) (i) Write a C program to count the number of vowels in your name. (6)
(ii) Write a C program to multiply two matrices. (10)

OR

- (b) (i) Write a C program to check whether the given string is palindrome or not. (6)
(ii) Write a C program to arrange the given 10 numbers in descending order. (10)

14. (a) (i) Write a C program to find the smallest and largest number from the given 10 numbers using functions. (10)
(ii) Explain the pass by reference with an example. (6)

OR

- (b) (i) Write a C program to find the factorial of a given number using recursion. (8)
(ii) Write a C program to count the number of words in a string using pointers. (8)

15. (a) Define a structure called student would contain name, register number and marks of five subjects and percentage. Write a program to read the details of name, register number and marks of five subjects for 25 students, calculate the percentage and display the name, register number, marks of 25 subjects, percentage of all the students and also the name of the student who got highest percentage among the 25 students. (16)

OR

- (b) (i) Explain the various storage classes in C. (8)
(ii) Describe about the preprocessors with suitable example. (8)

NUMERICAL METHODS

(Common to Sixth Semester - Electronics and Communication Engineering, Industrial Engineering and Information Technology, Fifth Semester - Polymer Technology, Chemical Engineering and Polymer Technology, Fourth Semester - Pharmaceutical Engineering, Civil Engineering, Electrical and Electronics Engineering and Mechanical Engineering)
(Regulations 2008/2010)

Time - Three Hours

Maximum Marks - 100

Answer ALL questions.

PART - A (10 × 1 = 20 Marks)

Write down the condition for convergence of Newton-Raphson method for $f(x)$.

Find the inverse of $A = \begin{pmatrix} 1 & 3 \\ 2 & 5 \end{pmatrix}$ by Gauss-Jordan method.

State Newton's forward difference formula for equal intervals.

Find the divided differences of $f(x) = x^3 - x^2 + 3x + 5$ for the x values 0, 1, 4, 5.

Write down the expression for $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at $x = x_0$ by Newton's backward difference formula.