

Faculty of Science & Technology
First Semester B. Tech. (ET in ET) Common) (NEP)
(AI/AIDS/AIML/RoAI/I IOT) Examination (2024-25)
PROGRAMMING FOR PROBLEM SOLVING

Time—Three Hours]

[Maximum Marks—70

INSTRUCTIONS TO CANDIDATES

- (1) All questions carry marks as indicated.
 - (2) Solve Question No. 1 OR Question No. 2.
 - (3) Solve Question No. 3 OR Question No. 4.
 - (4) Solve Question No. 5 OR Question No. 6.
 - (5) Solve Question No. 7 OR Question No. 8.
 - (6) Solve Question No. 9 OR Question No. 10.
 - (7) Due credit will be given to neatness and adequate dimensions.
 - (8) Assume suitable data whenever necessary.
1. (a) What is pseudo code ? Explain with example, how it is used as a problem solving tool. 7
- (b) Where are computer programs typically stored ? Describe the difference between volatile and non-volatile memory. 7

OR

2. (a) Define algorithm. Write an algorithm to find the area and perimeter of circle and compare pseudo code with an algorithm. 7
- (b) Explain formatted input and output statement with examples. 7
3. (a) Explain the different types of loops in C with syntax. 7
- (b) Show how break and continue statements are used in a C-program, with example. 7

OR

4. (a) Develop a C program to generate and plot the Pascal triangle. 7
- (b) Define :
- (i) Variable
 - (ii) Constant
 - (iii) Key words
 - (iv) Precedence
 - (v) Data types 7

5. (a) Construct a C program to search an element using linear and binary techniques. 8
(b) Define an array. How to initialize one-dimensional array ? Explain with suitable examples. 6

OR

6. (a) Construct a C program for [consider integer data] :
(i) Bubble sort
(ii) Linear search 7
(b) Explain with syntax and example, the different string manipulation library functions with example. 7
7. What is function ? Explain different classification of user defined functions based on parameter passing and return type with examples. 14

OR

8. (a) Write a C-program using functions to generate the Fibonacci series. 7
(b) What is recursion ? What are the advantages and disadvantages of recursion ? 7
9. (a) With proper examples explain different arithmetic operations on pointers. 5
(b) What is structure ? Explain C syntax of structure declaration with example. 9

OR

10. Write a C-program using structures to read, write, compute average - marks and display the students scoring above and below the average marks for a class of N students. 14