

NTK/KW/15–7326

**Third Semester B. E. (C.S.E.) (C.B.S.)
Examination**

**ADVANCED C PROGRAMMING AND LOGIC
DESIGN**

Time : Three Hours]

[Max. Marks : 80

N. B. : (1) All questions carry marks as indicated.

(2) Solve Six questions as follows :

Que. No. 1 OR Que. No. 2

Que. No. 3 OR Que. No. 4

Que. No. 5 OR Que. No. 6

Que. No. 7 OR Que. No. 8

Que. No. 9 OR Que. No. 10

Que. No. 11 OR Que. No. 12

(3) Assume suitable data wherever necessary.

1. (A) Write a program to convert a 5 X 5 given matrix into lower triangular matrix. 7

(B) Write a program to concatenate two strings without using standard library function. 7

OR

2. (A) Differentiate between structure and union with examples of each. 4

(B) Explain sizeof () and enumerated data types. 4

(C) Write a program to accept marks of 50 students in a subject with rollno, name and marks and calculate total and average marks using pointer to structure. 6

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Contd.

3. (A) Explain the concept of command line argument with example. 6
(B) Given a text file sample. txt, create another file deleting all the vowels from it. 7

OR

4. (A) Explain the following C functions :—
(i) Ferror ()
(ii) Feof ()
(iii) Fprintf ()
(iv) Fread () 6
(B) Write a program to remove all comments from a C program file. 7
5. (A) Differentiate between call by value and call by reference. Also write a program to swap two values using call by value and call by reference. 7
(B) Write a recursive function to get the n^{th} term of Fibonacci series. 6

OR

6. (A) Explain with example the difference between :—
(1) Array of pointers and
(2) Pointer to Array. 5
(B) Write a program using pointers to reverse a string without using standard library function. 8

7. Explain the following graphics functions with syntax and examples.

- (i) arc ()
- (ii) Putimage ()
- (iii) getmaxy ()
- (iv) graphics defaults ()
- (v) lineto () 13

OR

8. (A) Write a program in C to draw a polygon passing through the points given below and fill with colour (100,100) (200,50) (300, 200) and (150, 250) 6

(B) Write a program in C to draw a chain of four circle in a horizontal line such that each new circle passes with the centre of the previous circle. 7

9. (A) Prove the following using Mathematical Induction.

$$1^3 + 2^3 + 3^3 + \dots + n^3 = \left[\frac{n(n+1)}{2} \right]^2 \quad 7$$

(B) List and discuss computational model in detail. 7

OR

10. (A) Write an algorithm to find smallest and largest element from a list of 10 elements. 7

(B) Make the following complexity analysis for linear search operation of a list of size N. which one is

significant :—

- (i) Best case
- (ii) Average case
- (iii) Worst case.

7

11. (A) What is object oriented programming ? How it differs from procedure oriented programming.

5

(B) Explain the following with respect to object oriented programming :—

- (i) Late binding.
- (ii) Encapsulation.
- (iii) Inheritance.
- (iv) Object.

8

OR

12. Write short notes on :—

- (i) Assertion and loop invariants.
- (ii) Properties of Algorithm.
- (iii) Model of computation.

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4

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