I-UG-C1-Maj—C.Sc.-II

2025

COMPUTER SCIENCE

Full Marks : 100

Time : 3 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

SECTION – A

1. Write the *correct* answer from the given alternatives : 1 × 10

(*a*) The process of converting source code into machine code is called _____ .

(*i*) Compilation

(*ii*) Interpretation

(*iii*) Linking

(*iv*) Execution

(*b*) Which of the following is not a valid C identifier ?

(*i*) total_marks
(*ii*) _average
(*iii*) int
(*iv*) mark1

(*c*) What is the size of an 'int' variable in a typical 32-bit system ?

(*i*) 2 bytes
(*ii*) 4 bytes
(*iii*) 8 bytes
(*iv*) 16 bytes

(*d*) How many times will the loop execute for(i=0; i < 5; i++);

(*i*) 0
(*ii*) 4
(*iii*) 5
(*iv*) Infinite

(Continued)

(*e*) Array elements are always stored in _____ memory locations.

(*i*) Random
(*ii*) Sequential
(*iii*) Linear but unordered
(*iv*) None

(*f*) Which of the following is a valid pointer declaration ?

(*i*) int ptr;
(*ii*) int *ptr;
(*iii*) ptr int;
(*iv*) int & ptr;

(*g*) The keyword static is used to _____.

(*i*) Allocate memory dynamically
(*ii*) Retain variable value
(*iii*) Define global variable
(*iv*) None

(Turn Over)

(*h*) Which function is used to open a file in C ?

(*i*) fopen()

(*ii*) open()

(*iii*) fileopen()

(*iv*) getfile()

(*i*) What is the default storage class of a variable in C ?

(*i*) auto

(*ii*) static

(*iii*) extern

(*iv*) register

(*j*) A union in C _____.

(*i*) Allocates separate memory for each member

(*ii*) Shares memory among members

(*iii*) Has no members

(*iv*) None

SECTION – B

2. Answer the following questions : 2×9

(*a*) Define a keyword and an identifier.

(*b*) Explain the use of format specifiers in printf() and scanf().

(*c*) Define precedence and associativity of operators.

(*d*) What is the purpose of the break and continue statements ?

(*e*) What is the limitation of arrays in C?

(*f*) Define a pointer and mention its advantages.

(*g*) Explain any two dynamic memory allocation functions.

(*h*) Explain the purpose of 'extern' storage class.

(*i*) What is a nested structure ? Give an example.

SECTION – C

3. Answer any *eight* of the following : 5 × 8

(*a*) Explain the various stages of compilation and preprocessing in C.

(*b*) Write a program to find the largest among three numbers using if...else.

(*c*) Write a program to print the Fibonacci series using a for loop.

(*d*) Explain the declaration and initialization of one-dimensional and two-dimensional arrays.

(*e*) Write a program to find the sum of all elements in an array.

(*f*) Explain pointer arithmetic with examples.

(*g*) Describe string handling functions with suitable examples.

(*h*) Explain recursion with an example to calculate factorial.

(*i*) Explain file opening modes in C.

(*j*) Differentiate between structure and union with example code.

SECTION – D

4. Answer any *four* of the following : 8 × 4

(*a*) Explain different types of operators in C.

(*b*) Discuss different looping constructs in C and their execution flow with examples.

(*c*) Describe string handling functions with suitable examples.

(*d*) Write a program to demonstrate call by value and call by reference.

(*e*) Explain the use of command line arguments in C with an example.
