R4124

Sub. Code
25BSD1C1

B.Voc. DEGREE EXAMINATION, NOVEMBER – 2025

First Semester

Software Development

FUNDAMENTALS OF C PROGRAMMING

(CBCS – 2025 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. _____ is a valid identifier in C. (CO1, K1)

   (a) int (b) total_sum

   (c) 2 value (d) float

2. In C, the process of converting one data type to another explicitly by the programmer is called _____. (CO1, K2)

   (a) Type Casting (b) Type Conversion

   (c) Type Definition (d) Type Declaration

3. Which keyword is used to transfer control to another part of the-program unconditionally? (CO1, K1)

   (a) break (b) continue

   (c) goto (d) switch

4. Which of the following storage classes has the longest lifetime? (CO2, K2)

   (a) auto (b) static

   (c) register (d) extern

5. The index of the first element of an array in C is always _____. (CO3, K1)

(a) 0 (b) 1

(c) –1 (d) Depends on compiler

6. Which function is used to calculate the length of a string in C? (CO3, K2)

(a) strlen() (b) size()

(c) strlength() (d) length()

7. What does the expression ptr++ do? (CO4, K1)

(a) Increments pointer variable itself

(b) Increments the value pointed by pointer

(c) Decrements pointer variable itself

(d) Decrements the value pointed by pointer

8. Which function is a classic example of recursion? (CO4, K2)

(a) printf() (b) scanf()

(c) factorial() (d) strlen()

9. Which function is used to remove a file in C? (CO5, K2)

(a) delete() (b) erase()

(c) remove() (d) clear()

10. The preprocessor directive #include <stdio.h> is an example of _____. (CO5, K2)

(a) Macro substitution

(b) File inclusion

(c) Compiler control directive

(d) None of the above

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Explain the structure of a C program with an example. (CO1, K2)

Or

(b) Write a short note on different types of programming languages. (CO1, K1)

12. (a) Explain recursion with the example of Tower of Hanoi. (CO2, K3)

Or

(b) Write short notes on different types of looping statements in C. (CO2, K2)

13. (a) Illustrate two—dimensional arrays with an example program. (CO3, K2)

Or

(b) Write a program in C to find the length of a string without using built-in functions. (CO4, K3)

14. (a) Explain dynamic memory allocation functions in C with suitable examples. (CO4, K2)

Or

(b) Differentiate between array name and pointer with examples. (CO4, K4)

15. (a) Write a program to count the number of characters, words and lines in a text file. (CO5, K3)

Or

(b) Explain the role of compiler control directives with examples. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Explain algorithms and flowcharts with suitable examples. (CO1, K2)

Or

(b) Illustrate the basic data types available in C with suitable example. (CO1, K1)

17. (a) Discuss functions in C, their declaration, definition, and parameter passing mechanisms with examples. (CO2, K2)

Or

(b) Explain recursion vs iteration in detail. (CO2, K4)

18. (a) Describe arrays and their operations in C with examples. (CO3, K2)

Or

(b) Write a detailed note on string handling functions with examples. (CO3, K2)

19. (a) Discuss pointers in C and their applications in programming. (CO4, K1)

Or

(b) Explain function pointers and their uses with examples. (CO4, K2)

20. (a) Explain file handling functions in C with examples. (CO5, K2)

Or

(b) Discuss preprocessor directives in C in detail. (CO5, K2)

———————

R4125	Sub. Code 25BSD1C2

B.Voc. DEGREE EXAMINATION, NOVEMBER – 2025

First Semester

Software Development

FUNDAMENTALS OF DIGITAL COMPUTER AND PROGRAMMING

(CBCS – 2025 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. The binary equivalent of decimal 13 is _____. (CO1, K1)

   (a) 1100 (b) 1101

   (c) 1011 (d) 1001

2. Which logic gate has the output true only when all inputs are false? (CO1, K2)

   (a) AND (b) OR

   (c) NAND (d) NOR

3. The complement of A + B is _____. (CO2, K1)

   (a) A' + B' (b) A'B'

   (c) AB (d) (A + B)"

4. Karnaugh maps are used for _____. (CO2, K2)
   (a) Memory allocation
   (b) Circuit simplification
   (c) Counting logic gates
   (d) Data transfer

5. The circuit that adds two binary digits and produces a sum and carry is _____. (CO3, K1)
   (a) Half adder (b) Full adder
   (c) Subtractor (d) Decoder

6. Which flip-flop changes state on every clock pulse? (CO3, K2)
   (a) RS (b) D
   (c) JK (d) T

7. Which flowchart symbol is used to denote input/output? (CO4, K1)
   (a) Parallelogram (b) Rectangle
   (c) Oval (d) Diamond

8. Flowchart helps in _____. (CO4, K2)
   (a) Data storage
   (b) Algorithm representation
   (c) Compilation
   (d) Execution

9. Which algorithm can be used to test whether a string is a palindrome? (CO5, K1)
   (a) Sorting algorithm
   (b) String reversal
   (c) Searching algorithm
   (d) Hashing

10. The product of two matrices of order (2 × 3) and (3 × 4) results in a matrix of order _____. (CO5, K2)
   (a) 2 × 2 (b) 2 × 4
   (c) 3 × 4 (d) 4 × 3

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Explain binary multiplication and division with examples. (CO1, K2)

Or

(b) Discuss different binary codes with examples. (CO1, K1)

12. (a) Explain Boolean algebra laws and theorems. (CO2, K2)

Or

(b) Illustrate the features of Karnaugh map. (CO2, K3)

13. (a) Explain full adder circuit with truth table and logic diagram. (CO3, K3)

Or

(b) Discuss sequential logic circuits with examples. (CO3, K2)

14. (a) Write flowchart and algorithm to find area of a circle. (CO4, K3)

Or

(b) Write flowchart to determine whether a number is prime. (CO4, K4)

15. (a) Write algorithm to convert decimal to binary. (CO5, K3)

Or

(b) Write algorithm to find sum of digits until reduced to single digit. (CO5, K3)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Explain number systems and conversions in detail with examples. (CO1, K2)

Or

(b) Discuss logic gates and their applications. (CO1, K2)

17. (a) Explain universal gates with examples. (CO2, K2)

Or

(b) Discuss implementation of SOP and POS using K-map. (CO2, K2)

18. (a) Explain multiplexers and demultiplexers with diagrams. (CO3, K1)

Or

(b) Discuss different types of flip-flops with neat diagrams. (CO3, K3)

19. (a) Write flowchart and algorithm to determine commission rate for bookseller. (CO4, K4)

Or

(b) Write flowchart to find all even natural numbers divisible by 7 in given range. (CO4, K4)

20. (a) Write algorithm to reverse an array. (CO5, K3)

Or

(b) Explain string processing algorithms with examples. (CO5, K4)

———————