



A Charutar Vidya Mandal's Institution  
**V.P. & R.P.T.P. SCIENCE COLLEGE**  
(AUTONOMOUS) (Grant-in-Aid)  
Affiliated to Sardar Patel University  
VALLABH VIDYANAGAR-388120



**Bachelor of Science (Semester-4) Internal Examination - 2026**

**US04MACSC01: Advanced C Programming and Introduction to Data Structures**

**Date: 07/03/2026 Saturday**

**Time: 2:45 PM TO 4:15 PM**

**Total marks :30**

**Q. 1. Multiple choice question.**

**6**

1. Given a structure variable named stu which is of type struct STU and contains a field named major, which of the following statements correctly refers to major?
  - a) Major
  - b) stu-major
  - c) stu.major
  - d) STU.major
2. Given a pointer ptr to a structure stu containing a field called name which of the following statements correctly refer name?
  - a) ptr->name
  - b) ptr.name
  - c) ptr->stu.name
  - d) ptr->stu->name
3. Which functions are used to write mixed data into a file?
  - a) fprintf()
  - b) putc()
  - c) putw()
  - d) None of these
4. What is the function of getc() function?
  - a) To read a number from file
  - b) To read a character from file
  - c) To write character in to file
  - d) All of the above
5. Files are a \_\_\_\_\_ type of Data Structure.
  - a) Linear
  - b) Primitive
  - c) Non-Primitive
  - d) Non-Linear
6. A linked list is \_\_\_\_\_ type of data structure?
  - a) Linear
  - b) Non-Linear
  - c) Both (A) and (B)
  - d) None of Above



- Q-2. Explain array of structures using suitable examples. 6  
OR
- Q.2 Explain pointer to structure array using appropriate example. 6
- Q.3 How files can be defining in 'C'? Explain fopen() and fclose() function in detail. 6  
OR
- Q.3 Explain functions used to handle integer numbers in file with example. 6
- Q.4 Explain a STACK with an example. Write algorithm to perform PUSH and POP operations over a stack. 6  
OR
- Q.4 Explain data structure with examples. Also write advantages of data structure 6
- Q.5. Which sorting techniques are used to sort an array? Explain any one with example. 6  
OR
- Q.5 Explain sequential search technique? Write an algorithm to search an element using sequential search. 6



A Charutar Vidya Mandal's Institution  
**V.P. & R.P.T.P. SCIENCE COLLEGE**

(AUTONOMOUS) (Grant-in-Aid)  
Affiliated to Sardar Patel University  
VALLABH VIDYANAGAR-388120



BSC. C.S. (Semester-4) Quiz - 2026

US04MACSC01: Advanced C Programming and Introduction to Data Structures

Date: 07-03-2026 Day: Saturday

Time: Maximum 20 minutes

Total marks :15

Q-1 Fill in the blanks with appropriate answer given in the bracket.

[08]

- (i) \_\_\_\_\_ is not a derived data type. (Float / Array)
- (ii) A \_\_\_\_\_ allows a portion of memory to be shared by different types of data. (Union / Structure)
- (iii) In C language, file modes such as \_\_\_\_\_ are used to open files. ("r", "w", "a" / "R", "W", "A")
- (iv) The function \_\_\_\_\_ is used to read integer numbers from a file in C. (getw() / getc())
- (v) \_\_\_\_\_ store homogeneous data elements. (Arrays / Records)
- (vi) When new data are to be inserted into a data structure but no space is available, this situation is called \_\_\_\_\_. (Overflow / Underflow)
- (vii) A linked list in which the last node points to the first node is called a \_\_\_\_\_.  
(Circular linked list / Doubly linked list)
- (viii) A linear collection of data elements where each node is connected using pointers is called a \_\_\_\_\_.  
(Linked List / Node List)

Q-2 Whether the following statement is true or false. Write your answer in the box

[07]

- (i) The typedef keyword in C can be used to create a new type that can be used anywhere a type is permitted. [       ]
- (ii) All elements of an array of structures are not created in continuous memory locations [       ]
- (iii) The putw() function is used to write integer numbers into a file in C. [       ]
- (iv) stdout and stderr are two predefined FILE pointers in C [       ]
- (v) A dequeue is a data structure in which elements can be added or removed at either end but not in the middle.. [       ]
- (vi) A stack is a linear type of data structure . [       ]
- (vii) The best-case time complexity of Bubble Sort is  $\theta(n)$ . [       ]

