

Seat No. : _____

MT-109

March-2019

B.C.A., Sem.-II

CC-108 : Advanced C Programming (New Course)

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) Answer the following :

1. Explain array of structure with suitable example. 7
2. Explain structure within structure with suitable example. 7

OR

1. How structure can differ from union? Explain array within structure with suitable example.
2. What is structure ? Explain syntax and initialization of structure in different ways with suitable example.

(B) Do as directed. (Any Four) 4

1. List out operations on structure.
2. The members of a structure is accessed by using * operator. [True/False]
3. Give one difference between array and structure.
4. A structure is declared using ___ keyword.
5. The size of union is the size of its largest field. [True/False]
6. A structure that contains a reference to data of its same type is called _____.

2. (A) Answer the following :

1. What is an array of pointers? How is it different from pointers to an array ? Explain with example. 7
2. Explain the concept of passing a pointer as an argument to a function with example. 7

OR

1. What is pointer ? How pointer works with array ? Explain with example.
2. Write a short note on pointer arithmetic.

(B) Do as directed. (Any Four) 4

1. _____ pointer is a pointer that does not point anywhere.
2. Give one difference between pointer and array name.
3. _____ pointer is known as a generic pointer.

4. _____ stores the address of another pointer variable.
5. The expression `arr[i]` is equivalent to `*(arr + i)`. [True/False]
6. The name of the array is a pointer that points to the first element of the array. [True/False]
3. (A) Answer the following :
- How can we delete an element at first position in singly linked list ? Explain with steps. 7
 - Give difference between dynamic memory allocation and static memory allocation. Explain. 7
Malloc(), calloc() and realloc() functions in detail.
- OR**
- Explain node structure of singly linked list with diagram. Give differences between singly and doubly linked lists.
 - Give differences between array and linked list. Explain memory allocation and deallocation for singly linked list with example.
- (B) Do as directed : (Any **Three**) 3
- Write any one advantage of linked list.
 - The link part of every node is always null in singly linked list. [True/False]
 - Draw structure of circular linked list.
 - What is the use of free() function ?
 - When header pointer is null, linked list is empty. [True/False]
4. (A) Answer the following :
- What is file ? Explain fseek(), fscanf() and getw() functions with syntax and suitable example. 7
 - How to read and write text files ? Explain with example. 7
- OR**
- List out types of preprocessor directives. Explain any one with example.
 - Explain file modes : (a) r and r+ (b) w and wb+
- (B) Do as directed : (Any **Three**) 3
- Write syntax of fopen().
 - List out any one error handling function.
 - The ftell() is used to adjust the file pointer position. [True/False]
 - The stdout is a standard stream in C. [True/False]
 - _____ function is used to close a stream.

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1. (A) Answer the following :
- (1) Explain different categories of user defined function. 7
 - (2) What is recursion ? Explain direct and indirect recursion with example. 7
- OR**
- (1) Explain storage classes in detail.
 - (2) Explain nested function with suitable example.
- (B) Do as directed. (Any **Four**) 4
- (1) List out elements of user defined function.
 - (2) Give difference between actual arguments and formal arguments.
 - (3) A function must have at least one argument. [True/False]
 - (4) A _____ statement may or may not return a value to the calling function.
 - (5) Function declaration must end with semicolon. [True/False]
 - (6) The argument names in the function declaration and function definition need not be the same. [True/False]
2. (A) Answer the following :
- (1) How can we access structure variables ? Explain array within structure with suitable example. 7
 - (2) What is pointer ? How can we declare and initialize pointer ? Write advantages of pointer. 7
- OR**
- (1) Explain uses of address of (&) and indirection (*) operators. Explain concept of pointer arithmetic.
 - (2) Explain nested structure with suitable example.
- (B) Do as directed. (Any **Four**) 4
- (1) List out operations on structure.
 - (2) The members of a structure is accessed by using * operator. [True/False]
 - (3) _____ pointer is a pointer that does not point anywhere.
 - (4) The size of union is the size of its largest field. [True/False]
 - (5) A structure that contains a reference to data of its same type is called _____.
 - (6) Give one difference between array and structure.

3. (A) Answer the following :
- (1) Explain array of pointers with suitable example. 7
 - (2) Explain functions of dynamic memory allocation/de-allocation in detail. 7

OR

- (1) Explain call by value and call by reference with example.
 - (2) What is linked list ? Explain insertion operation of singly linked list with example.
- (B) Do as directed. (Any **Three**) 3
- (1) List out any one application of linked list.
 - (2) The _____ pointer is known as a generic pointer.
 - (3) The expression arr[i] is equivalent to *(arr+i). [True/False]
 - (4) The link part of every node is always null in singly linked list. [True/False]
 - (5) Give one difference between singly and doubly linked lists.

4. (A) Answer the following.
- (1) What is preprocessor? Explain macro substitution directives in detail. 7
 - (2) Explain rewind(), fprintf() and putw() functions with syntax and suitable example. 7

OR

- (1) What is file ? Explain modes of text files with syntax and example.
 - (2) Explain command line arguments with suitable example.
- (B) Do as directed. (Any **Three**) 3
- (1) List out any one error handling function.
 - (2) Write syntax of fopen().
 - (3) The fseek() is used to give current position. [True/False]
 - (4) The stdin is a standard stream in C. [True/False]
 - (5) _____ function is used to close a stream.