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 :
   1. How can we delete an element at first position in singly linked list ? Explain with steps. **7**
   2. Give difference between dynamic memory allocation and static memory allocation. Explain. **7**
      Malloc( ), calloc( ) and realloc( ) functions in detail.

   OR

   1. Explain node structure of singly linked list with diagram. Give differences between singly and doubly linked lists.
   2. 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**
   1. Write any one advantage of linked list.
   2. The link part of every node is always null in singly linked list. [True/False]
   3. Draw structure of circular linked list.
   4. What is the use of free() function ?
   5. When header pointer is null, linked list is empty. [True/False]

4. (A) Answer the following :
   1. What is file ? Explain fseek(), fscanf() and getw() functions with syntax and suitable example. **7**
   2. How to read and write text files ? Explain with example. **7**

   OR

   1. List out types of preprocessor directives. Explain any one with example.
   2. Explain file modes : (a) r and r+ (b) w and wb+

   (B) Do as directed : (Any **Three**) **3**
   1. Write syntax of fopen().
   2. List out any one error handling function.
   3. The ftell() is used to adjust the file pointer position. [True/False]
   4. The stdout is a standard stream in C. [True/False]
   5. _____ function is used to close a stream.

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Time : 2:30 Hours] **[Max. Marks : 70**

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.

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