ASSIGNMENT QUESTIONS: CHAPTER 5 & CHAPTER 6

CHAPTER 5 POINTERS 1) POINTER VARIABLE AND ITS IMPORTANCE 2) POINTER ARITHMETIC 3) PASSING PARAMETERS BY REFERENCE CHAPTER 6 STRUCTURES, UNION AND FILE HANDLING 1) DECLARATION OF STRUCTURES 2) POINTER-TO-POINTER 3) POINTER TO STRUCTURE 4) POINTER TO STRUCTURE 4) POINTER TO FUNCTION 5) UNIONS 6) DYNAMIC MEMORY ALLOCATIONS 7) UNIONS 8) FILE MANAGEMENT

CHAPTER 5: POINTERS

Q1. What is a Pointer Variable? Declare pointer variable of int, float char type. Initialize the pointers to address of variables of same type. Display the address of the variables.

Q2. What is the use of address operator. What is the use of indirection operator. Write a program to use address of operator and subsequently use indirection operator to display the value of the variables by accessing their values by using *pointer variablename.

Q3. Write a function to receive, as argument, the address of an array of real numbers and the array size, and return the maximum number in the array.

Q4. Read the element of a two dimensional matrix int x[2][3]; and display the matrix accessing the values using pointers. [Hint: Access the ith row and jth column element of the matrix as *(*x+i)+j]

Q5. Write a program to read any number x and evaluate 2x + 10. Use a function to evaluate 2x + 10. Call this function through its pointer.

Q6. Write a program to display the number of and value of command line arguments.

Q7. Write a program to swap values of variables through call by reference.

Q7. Write a note on pointer to pointer. Illustrate with an example.

Q8. How to declare a pointer to a function. Explain with an example.

Q9. Write a note on Pointer Arithmetic. Explain with examples.

CHAPTER 6: STRUCTURES, UNION AND FILE HANDLING

Q1. What is a structure? Declare a struct student with following data members int roll_number and char name[30]. Declare an array of structure to accept and display the details of 5 students.

Q2. What is a union. How is it different from a structure. Declare a union with data members int a, float b and char c. Initialize the data members and display the values one after another. Also display the size of the union.

Q3. Write a program to allocate memory using malloc function for storing an integer value. Display the value accepted through the keyboard and also the address where in the value is stored.

Q4. Write a program to allocate 20 bytes of memory using malloc() and store a line of text at the address returned by malloc().

Q5. Write a program to allocate memory using calloc function for storing an integer value. Display the value accepted through the keyboard and also the address where in the value is stored.

Q6. Write a program to allocate 20 bytes of memory using calloc() and store a line of text at the address returned by calloc().

Q7. What is the use of the realloc function and free function. Distinguish between malloc & calloc.

Q8. What is a link list. How is it different from an array. Write a program to create a link list in which each node stores the roll number and address of students. Keep adding nodes to the link list till the user desires, and stop adding nodes when the user accepts N or n.

Q9. What is the use of fopen(), fclose(), getc(), putc(), fprintf(), fscanf(), fseek(), rewind(), feof(). Write the prototypes of the functions and briefly explain the use of each of the above mentioned functions.

Q10. What is the difference between sequential file access and random file access.

Q11. Using command line arguments, create programs to implement the followings:

Erase filename (To erase the content of the file)

Merge filename1 filename2 (to append the content of file2 at end of file1)

Copy filename1 filename2 (copy content of filename1 to filename2 to create a duplicate copy of filename1)

Q12. Explain briefly the use of following functions

malloc [Hint: ptr = (cast-type *) malloc(byte-size);]

calloc [Hint: ptr = (cast-type *) calloc(n, elem-size);]

free [Hint: free(ptr);]

realloc [Hint: ptr=malloc(size); ptr=realloc(ptr, newsize);]

Q13. What is the advantage of a linked list over an array. How does a structure differ from an array.