

- Q 6: What will be the file position of the file marker in; (2 marks)
- `fseek(ptr, 0, SEEK_SET);`
 - `fseek(ptr, 0, SEEK_CUR);`

SECTION B

Q 7: Attempt the following questions

- Differentiate between a queue and a stack (2 marks)
- Using array implementation of stacks, write a function to push float data into the stack (5 marks)
- Using linked list implementation of stacks, write a simplified function to pop from the stack (5 marks)

Q 8: Respond to the following questions

- What is the advantage of a structure over an array? (1 mark)
- Provide the syntax for a structure definition (2 marks)
- Given that one structure has members `int age` and `char name[]` while the other structure contains `float salary` and all members of the first structure. Which means the first structure can be nested in the second structure.
 - Write the code fragments to define these two structures (4 marks)
 - Declare a variable of the second structure's type (1.5 marks)
 - Assign the age member of the variable in (ii) above to be 45 (1.5 marks)
 - Declare an array of second structure's type, of size 100 (2 marks)

Q 9

- List three advantages of using functions in C programming (3 marks)
- Briefly differentiate between passing by values and passing by parameters (2 marks)
- Write a C programming function that converts Celsius temperature to Fahrenheit and vice versa, depending on the user's choice. The function takes in temperature and choice (to Celsius or to Fahrenheit) as arguments. Note: The formula for conversions are; $C = 5/9 (F - 32)$ and $F = 9/5 (C + 32)$. (7 marks)

Q 10:

- Convert the following program to use while loop instead of for loop (2 marks)

```
main()
{
    int i = 0, j = 8;
    printf("Times 8 Table\n");
    for(i = 0; i <= 12; i = i + 1) {
        printf("%d x %d = %d\n", i, j, j*i);
    }
}
```

- List the three ways in which pointers can be used in C (3 marks)
- Write a programme, using arrays, that accepts marks of a test from a number of students marks (the number of students to be provided by the user) and deduct 7 from each. If the resulting mark for an individual is less than 40, it should set the marks to be 40. (7 marks)

Q 11

- Explain what is `volatile` and how useful it is in computing? (3 marks)
- Write the function in C implementation to swap values of two variables (3 marks)
- Describe the algorithm for bubble sort and then write a function in C language that implements bubble sort algorithm (if need be, you may use the swap function above (6 marks)

Advantages of functions

- No Break large computing task into smaller ones
- Provide a convenient way to hide some computation
- Enable programmer to build what others have done