UNIT – I Long Answer Type Questions

1. Explain the role of keywords and operators in C programming. List the rules for naming variables giving example.

2. Explain the use of bitwise operators with examples.

3. State the use of In-Equality operator. Write a program to compute sum and average of three integers.

4. Explain in detail constant and variable in C language. Discuss how various variables are declared. What are keywords? Why keywords cannot be declared as variables?

5. What is an operator? Explain any four types of C operators with example.

6. List the different data types supported by 'C' language? Explain these data types with respect to format specification, range, size and keyword.

7. Write a program in C to find reverse of any four-digit number.

8. List at list six assignment operators along with their meaning. List logical and bitwise operator.

9. Explain the input output functions with examples.

10. Write a program to round off a given real number.

Short Answer Type Questions

1. State the merits of "C" language.

2. What are variables?

3. List any three relational operators.

4. What are tokens?

5. What is the value of a after execution of following steps?

   int a;

   a=300*300/300;

6. What is a escape sequence?

7. List all logical operators.

8. Differentiate between "=" and "==" operators.

9. What is the range of integers?

10. What are different data types?

UNIT – II Long Answer Type Questions

1. Explain the control structure if-else. Write a program to read ten integers from keyboard and print the sum of even and odd numbers separately.

2. Explain different loops available in C language with examples. Draw the related flowcharts.

3. What are the different methods of initializing one-dimensional array? Explain with suitable example.

4. Write a program in 'C' to sort an array of n element in descending order.

5. Explain the if-else statement with flowchart. Compare while and do-while statement. Explain the working of switch statement.

6. Give syntax of simple if – statement. Differentiate between simple if and if – else statement with example. Explain ladder if – else statement and nested if statement.

7. Write a program in 'C' to print.

   1

   2

   1 2   3

   1 2   3   4

8. Differentiate between if... else and switch statements with syntax and example.

9. Write a program in C to find the hcf and lcm of two integer numbers.

10. Explain conditional operator (? :) Give example. What are the differences between do-while and while statements?

Short Answer Type Questions

1. What is an array?

2. Write the syntax of if statement?

3. Write syntax of switch statement?

4. What is the output of following program?

5.   main()

```
{ int a,b=40;

a= (b++)*2;

printf("\n %d  %d",a,b);

}
```

6. What is the utility of goto statement?

7. Write at least two differences between while and do-while statements?

8. Give the syntax of for loop.

9. Give the syntax of if –else statement.

10. Write programming steps to print your name 10 times.

11. In array declaration

    int a[ ] ={ 2,4,5,3};

    value stored in a[2] is ……

UNIT – III Long Answer Type Questions

1. What is function? Explain necessity of a user-defined function.

2. How does a library function differ from a user defined one?

3. Explain the use of recursive function in finding factorial of a number.

4. What is a function? State rules for writing function. Differentiate between standard library function and user-defined function.

5. Explain following terms:

    i) Call by value   ii) Call by reference.

6. State difference between structure and union. What is meant by array of structure? Explain its declaration and initialization using suitable example.

7. Explain the utility of a pointer. How is pointer variable declared and initialized?

8. Write the rules for pointer arithmetic. Write a 'C' program to swap value of two variables using pointer.

9. List any four errors that may occur during I/O operation on a file. Explain in brief fopen( ) function. Write a program to create and count number of characters in a file.

10. Write a recursive function to find the factorial of a given number?

Short Answer Type Questions

1. What is a union?

2. What if EOF()?

3. What is a scale factor?

4. Differentiate between local and global variables.

5. State the use of void function.

6. What is a period operator?

7. Explain the action of f seek ( ) statement.

8. What do you understand by scale factor of a variable?

9. What is a command line argument?

10. What is the output of following program?

    #define SQUARE(X) X * X

11. void main ( )

    { printf ("\n Square = %d" , SQUARE(5+2)); }

Unit – IV Long answer type questions:

1. Draw the block diagram of 8051µC and explain it. Explain flag register of 8051µC.

2. Explain function of any four SFRs of 8051µC.

3. Explain the concept of register bank in 8051µC.

4. Explain lower 128 bytes of data memory of 8051µC.

5. Differentiate: Microprocessor and Microcontroller

6. Explain Von Neumann and Harvard Architectures

7. Draw the format of Flag register of 8051µC. Explain how it is useful in register bank selection.

8. Explain various ports of 8051µC with internal structure of each.

9. Draw pin diagram of 8051µC and explain the function of control and port pins.

10. Explain how 8051µC access external data and program memories.

Short answer type questions:

1. What id microcontroller?

2. State any two differences between microprocessor and microcontroller.

3. What is the advantage of Harvard Architecture?

4. What is the use of CY and AC flags?

5. State any four features of 8051μC.

6. Explain the function of EA pin of 8051μC.

7. Explain RXD and TXD pins of 8051μC.

8. What is bit-addressable area in internal RAM of 8051μC?

9. What is F0 in flag register of 8051μC?

10. What is the difference between timer and counter?

Unit – V Long answer type questions:

1. Explain various addressing modes of instructions of 8051μC.

2. Explain MOV, MOVC and MOVX instructions 8051μC.

3. Explain arithmetic instructions of 8051μC.

4. Explain ACALL, LCALL and RET instructions 8051μC.

5. Explain how 8051μC handles the interrupts.

6. Explain various interrupts and their vectors in 8051μC.

7. What is Stack? Explain variation of stack pointer during PUSH and POP instructions of 8051μC.

8. Explain PUSH and POP instructions of 8051μC with example of each.

9. What do you mean by nested subroutine? Explain processing of nested subroutine by 8051μC.

Short answer type questions:

1. What is addressing mode?

2. Give examples of Register and Immediate addressing of 8051μC.

3. Enlist various addressing modes of 8051μC.

4.   What do you mean by internal and external interrupts?

5. What is the reset location of 8051μC?

6. In 8051μC, why program and data memory address widths are 8-bit and 16-bit respectively?

7. What are conditional and unconditional branching instructions of 8051μC?

8. State the use of JB instruction?

9. What is stack?

10. Why stack is defined in data memory not in program memory?

Unit – VI Long answer type questions:

1. What is interfacing? Explain hardware and software key de-bouncing.

2. Explain interfacing of matrix type keyboard with 8051µC.

3. Explain 16x2 LCD module and function of its pins.

4. Explain interfacing of LCD display with 8051µC.

5. Explain interfacing of two 7-segment displays with 8051µC along with its principle of operation.

6. Explain interfacing of ADC with 8051µC and its operation.

7. Explain interfacing of DAC with 8051µC and its operation.

8. What is serial communication? Explain various modes of serial data transfer.

9. Explain connection of 8051µC with IC MAX232 for serial communication and explain its working.

10. Explain SCON register of 8051µC and steps for serial port communication.

Short answer type questions:

1. What is interfacing? How it is useful in digital systems?.

2. What is key bounce? How it can be solved?

3. State the disadvantages of single port line keyboard interfacing?

4. State the advantages of matrix type keyboard interfacing.

5. How contrast control can be achieved in LCD module?

6. In LCD module interfacing, how less port lines can be used?

7. State the application of ADC and DAC in digital systems.

8. Why start conversion signal is required in DAC?

9. What is RS232 standard?

10. Draw asynchronous serial communication data framing format.