Question 1

What will be the output of the following C programs?

a)

```
#include<stdio.h>
int main(void)
{
        char 5[111="Final Exam", c110)="May 2019";
        printf("\n %s\t%c%c%c\n", "C Programming ",'Examplec'x',’1');
        printf(" %s\t%s", s,c);
        return 0;
}
```

Ans:-

C Programming Ex1

Final Exam 1

b)

```
#include <stdio.h>
int main(void)
{
        float a=5.000;
        int b=5;
        printf("\n%12.2f \n", a);
        printf("%9d.00 \n", b);
         printf("%17s \n", "This is a");
        printf("\tC example");
        printf("\n\t%d%d%d", b, b++,--b);
}
```

Ans:-

5.00

5.00

This is a

C example

545

Question 2

a) Write a C program that prints the following output:

1	**2**	**3**	**4**
2	**4**	**6**	**8**
3	**6**	**9**	**12**
4	**8**	**12**	**16**

Ans:-

```c
#include <stdio.h>

int main() {
    int n = 4; // Number of rows and columns

    for (int i = 1; i <= n; i++) {
        for (int j = 1; j <= n; j++) {
            printf("%d\t", i * j);
        }
        printf("\n");
    }

    return 0;
}
```

b) Write a C program that takes two integer numbers and one operator (+ - * /) from the input and then performs the operator between the two values and prints the result.

Ans:-

```c
#include <stdio.h>

int main() {
    int num1, num2;
    char operator;

    printf("Enter two integers: ");
    scanf("%d %d", &num1, &num2);

    printf("Enter an operator (+, -, *, /): ");
    scanf(" %c", &operator);

    switch (operator) {
        case '+':
            printf("Result: %d + %d = %d\n", num1, num2, num1 + num2);
            break;
        case '-':
            printf("Result: %d - %d = %d\n", num1, num2, num1 - num2);
            break;
        case '*':
            printf("Result: %d * %d = %d\n", num1, num2, num1 * num2);
            break;
        case '/':
            if (num2 != 0) {
                printf("Result: %d / %d = %.2f\n", num1, num2, (float)num1 / num2);
            } else {
                printf("Error: Division by zero is not allowed.\n");
            }
            break;
        default:
            printf("Error: Invalid operator.\n");
    }

    return 0;
}

```

Question 3

a) Write a C program that reads ten integer numbers from the input and saves it in a 2-by-5 array. Then, the program finds the minimum number value and prints the result.

Ans:-

```c
#include <stdio.h>

int main() {
    int arr[2][5];
    int min = 0; // Initialize min to a placeholder value

    // Input loop
    printf("Enter ten integer numbers:\n");
    for (int i = 0; i < 2; i++) {
        for (int j = 0; j < 5; j++) {
            scanf("%d", &arr[i][j]);

            // Update min if necessary
            if (i == 0 && j == 0) {
                min = arr[i][j];
            } else if (arr[i][j] < min) {
                min = arr[i][j];
            }
        }
    }

    // Print the minimum value
    printf("Minimum value: %d\n", min);

    return 0;
}
```

b) Write a C program for Q3a using single-subscribed array.

Ans:-

```c
#include <stdio.h>

int main() {
    int arr[10];
    int min = 0; // Initialize min to a placeholder value

    // Input loop
    printf("Enter ten integer numbers:\n");
    for (int i = 0; i < 10; i++) {
        scanf("%d", &arr[i]);

        // Update min if necessary
        if (i == 0) {
            min = arr[i];
        } else if (arr[i] < min) {
            min = arr[i];
        }
    }

    // Print the minimum value
    printf("Minimum value: %d\n", min);

    return 0;
}

```

Question 4

What will be the output of the following two C programs?

a) Suppose the input values are 1 and 3.

```
#include<stdio.h>
int main(void)
{
int arr[2], i;
printf ("\n Enter two integers: ");
for (i=0; i<2; i++)
        scanf ("%d", &arr(i));
printf ("\n The output is:\n");
for (i=1; i>=0; i--)
        printf ("%4d", *(arr+i));
printf ("\n");
for (i=1; i>=0; i--)
 printf ("%4d", *(arr)+i);
}
```

Ans:-

The output is:

```
  3   1
  4   4
```

b) Suppose the input is 1.

```
#include<stdio.h>
void func(int *x);
int main(void)
{
        int num;
```

```
        printf("\n Please Enter a number ");
        scanf("%d", &num);
        func(&num);
        printf("\n The value of number is: %d \n", ++num);
        func(&num);
        printf("\n The value of number is: %d\n", --num);
        return 0;
}
void func(int *x)
{
        printf("\n The value in function is: %d", *x);
         *x = (*x)* (*x) *(*x);
}
```

Ans:-

Please Enter a number 1

The value in function is: 1

The value of number is: 2

The value in function is: 8

The value of number is: 7

Question 5

State appropriate UNIX command(s) to answer the following questions.

a) Create file "sample.c"

b) Search for the expression "include" in "sample.c".

c) Give execute permission only to the "sample.c"

d) Remove all execute permissions of the "sample.c"

e) Run "program" executable file and take input from "sample" file.

f) Move the contents of filet and filet into a single file3 g) Get online help for Is command

Ans:-

a. `touch sample.c`

- This command creates an empty file named "sample.c" if it doesn't already exist. If the file already exists, it updates its modification timestamp.

b. `grep "include" sample.c`

- This command searches for the word "include" in the file "sample.c" and displays all lines that contain this word.

c. `chmod +x sample.c`

- This command gives execute permission to the file "sample.c," making it executable. This is useful for running shell scripts or other executable programs.

d. `chmod -x sample.c`

- This command removes the execute permission from the file "sample.c," making it no longer executable.

e. `./program < sample`

- This command runs an executable program named "program" and uses the contents of the file "sample" as input for the program. The `<` symbol is used for input redirection.

f. `cat file1 file2 > file3`

- This command concatenates the contents of "file1" and "file2" and then redirects the output to "file3." If "file3" already exists, it will be overwritten.

g. `man ls`

- This command opens the manual page for the "ls" command, which is used to list files and directories in a directory. The "man" command is used to access the manual or documentation for various commands.