Lab session 10

P5 ,

7.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int num1 = 0, num2 = 1, nextNum;
printf("First 10 numbers of the Fibonacci sequence:\n");
printf("%d ", num1);
printf("%d ", num2);
for (int i = 3; i <= 10; i++) {
nextNum = num1 + num2;
printf("%d ", nextNum);
num1 = num2;
num2 = nextNum;
}
printf("\n");
return 0;
}
```

8.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number, originalNumber, remainder, result = 0, n = 0;
printf("Enter a number: ");
scanf("%d", &number);
originalNumber = number;
while (originalNumber != 0) {
originalNumber /= 10;
++n;
}
originalNumber = number;
while (originalNumber != 0) {
remainder = originalNumber % 10;
result += pow(remainder, n);
originalNumber /= 10;
}
```

```
if (result == number) {
printf("%d is an Armstrong number.\n", number);
} else {
printf("%d is not an Armstrong number.\n", n
umber);
}
return 0;
}
```

9.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
char letter;
printf("ASCII values for letters A to Z:\n");
for (letter = 'A'; letter <= 'Z'; letter++) {
printf("Letter: %c | ASCII Value: %d\n", letter, letter);
}
return 0;
}
```

10.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int rows;
printf("Enter the number of rows: ");
scanf("%d", &rows);
printf("Pattern:\n");
for (int i = 1; i <= rows; i++) {
for (int j = 1; j <= i; j++) {
printf("*");
}
printf("\n");
}
return 0;
}
```

11.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number, isPrime = 1;
printf("Enter a number: ");
scanf("%d", &number);
// Check if the number is less than 2
if (number < 2) {
isPrime = 0;
} else {
// Check for factors from 2 to sqrt(number)
for (int i = 2; i * i <= number; i++) {
if (number % i == 0) {
isPrime = 0;
break;
}
}
}
if (isPrime) {
printf("%d is a prime number.\n", number);
} else {
printf("%d is not a prime number.\n", number)
;
}
return 0;
}
```

12.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number;
printf("Enter an integer: ");
scanf("%d", &number);
printf("Factors of %d: ", number);
for (int i = 1; i <= number; i++) {
if (number % i == 0) {
printf("%d ", i);
}
}
printf("\n");
```

```
return 0;
}
```

13.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int number, sum = 0;
printf("Enter numbers to add (enter -1 to stop):\n");
while (1) {
printf("Enter a number: ");
scanf("%d", &number);
if (number == -1) {
break;
}
sum += number;
}
printf("Sum of the numbers: %d\n", sum)
;
return 0;
}
```

14.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int rows;
printf("Enter the number of rows: ");
scanf("%d", &rows);
printf("Pattern:\n");
for (int i = 1; i <= rows; i++) {
for (int j = 1; j <= i; j++) {
printf("*");
}
printf("\n");
}
return 0;
}
```

15.

```
#include <stdio.h>
```

```
#include <stdlib.h>
int main() {
int arr[10];
int count = 0;
printf("Enter 10 integers:\n");
for (int i = 0; i < 10; i++) {
printf("Enter element %d: ", i + 1);
scanf("%d", &arr[i]);
}
for (int i = 0; i < 10; i++) {
if (arr[i] % 2 == 0) {
count++;
}
}
printf("Count of even numbers: %d\n", count
);
return 0;
}
```

Section B

1.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int numbers[10];
int positiveCount = 0, negativeCount = 0, zeroCount = 0;
printf("Enter 10 numbers:\n");
for (int i = 0; i < 10; i++) {
printf("Enter number %d: ", i + 1);
scanf("%d", &numbers[i]);
if (numbers[i] > 0) {
positiveCount++;
} else if (numbers[i] < 0) {
negativeCount++;
} else {
zeroCount++;
}
}
printf("Positive numbers: %d\n", positiveCount);
printf("Negative numbers: %d\n", negativeCount);
printf("Zeroes: %d\n", zeroC
ount);
return 0;
}
```

2.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int marks[10];
int sum = 0, max = 0, min = 100;
printf("Enter marks of 10 students:\n");
for (int i = 0; i < 10; i++) {
printf("Enter marks for student %d: ", i + 1);
scanf("%d", &marks[i]);
sum += marks[i];
if (marks[i] > max) {
max = marks[i];
}
if (marks[i] < min) {
min = marks[i];
}
}
double average = (double)sum / 10;
printf("Maximum marks: %d\n", max);
printf("Minimum marks: %d\n", min);
printf("Average marks: %.2f\n",
average);
return 0;
}
```

3.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
float prices[10];
float sum = 0;
int count = 0;
printf("Enter the prices of 10 items:\n");
for (int i = 0; i < 10; i++) {
printf("Enter the price for item %d: ", i + 1);
scanf("%f", &prices[i]);
sum += prices[i];
if (prices[i] > 200) {
count++;
}
}
float average = sum / 10;
printf("Average value of an item: %.2f\n", average);
```

```
printf("Number of items with price greater than 200: %d\n", c
ount);
return 0;
}
```

4.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int employeeNo;
float basicSalary;
int count = 0;
printf("Enter employee numbers and basic salaries (Enter -999 as
employee number to stop):\n");
while (1) {
printf("Enter employee number: ");
scanf("%d", &employeeNo);
if (employeeNo == -999) {
break;
}
printf("Enter basic salary: ");
scanf("%f", &basicSalary);
if (basicSalary >= 5000) {
count++;
}
}
printf("Number of employees with basic salary >= 5000: %d\n",
count);
return 0;
}
```

5.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
int employeeNo;
float hoursWorked;
float overtimePayment;
int count = 0;
int totalEmployees = 0;
printf("Enter employee number and hours worked (Enter -999 as
employee number to stop):\n");
while (1) {
printf("Enter employee number: ");
scanf("%d", &employeeNo);
```

```
if (employeeNo == -999) {
break;
}
printf("Enter hours worked: ");
scanf("%f", &hoursWorked);
float overtimeRate = 150;
if (hoursWorked > 40) {
overtimeRate += (hoursWorked - 40) * 200;
}
overtimePayment = overtimeRate * hoursWorked;
overtimePayment = overtimeRate * hoursWorked;
printf("Employee number: %d\n", employeeNo);
printf("Overtime Payment: %.2f\n", overtimePayment);
if (overtimePayment > 4000) {
count++;
}
totalEmployees++;
}
float percentage = (float)count / totalEmployees * 100;
printf("Percentage of employees whose overtime payment exceeds Rs.
4000:
%.2f%%\n", percentage);
return 0;
}
```