C Programming
Practical 03,04 and 05

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BATCH : 23.1

Group A

Practical 03

01.

```
#include <stdio.h>
int main()
{
 int num1,num2,highest;
 printf("Enter two number");
 scanf("%d %d" ,&num1,&num2);

  if (num1>num2)
  highest=num1;
  else
  highest =num2;
  printf("The highst is %d \n",highest);
}
```

02.

```
#include <stdio.h>
int main()
{
int num1,num2,num3,largest,smallest;
printf("Enter three number");
scanf("%d%d%d",&num1,&num2,&num3);

if(num1>num2)
largest=num1;
else
if(num2>num3)
```

```
largest=num2;
else
largest=num3;

if(num1<num2)
smallest=num1;
else
 if(num2<num3)
smallest=num2;
else
smallest=num3;

printf("The largest is %d \n",largest);
printf("The smallest is %d \n",smallest);
}
```

03.

```
#include<stdio.h>
int main()
{
    char name[50];
    float basicsalary, newsalary, increment;

    printf("Enter your name");
    scanf("%s",&name);

    printf("Enter basic salary");

    scanf("%f",&basicsalary);

 if (basicsalary < 5000)
   {
    increment = basicsalary * 0.05;
   }
 else if (basicsalary > 5000)
   {
     increment = basicsalary * 0.10;
   }
 else if (basicsalary < 10000)
   {
      increment = basicsalary * 0.10;
   }
 else
```

```
   {
     increment = basicsalary * 0.15;
   }
newsalary = basicsalary + increment;

printf("name %s /n",name);
printf("new salary %2f \n",newsalary);
return 0;

}
```

04.

```
#include<stdio.h>
int main()
{
  float radius;
  const float PI=3.14159;

  printf("Enter the radius of the circle");
  scanf("%f",&radius);

  printf("diameter %f\n",2*radius);
  printf("circumference %f\n",2*PI*radius);
  printf("area %f\n",PI*radius*radius);
  return 0;
}
```

05.

```
#include<stdio.h>
int main()
{
  int num1, num2;
  printf("Enter the first number");
  scanf("%d",&num1);

  printf("Enter the second number");
  scanf("%d",&num2);

  if(num1%num2 ==0)
```

```
  {
  printf("%d is a multiple of %d\n", num1,num2);
  }
  else
  {
  printf("%d is not a multiple of %d\n",num1,num2);
  }
  return 0;
}
```

06.

```
#include <stdio.h>
int main()
{
char ch;
printf(" values of uppercase letters:\n");
for (ch = 'A'; ch <= 'Z'; ch++) {
printf("%c: %d\n", ch, ch);
}
printf(" values of lowercase letters:\n");
for (ch = 'a'; ch <= 'z'; ch++) {
printf("%c: %d\n", ch, ch);
}
printf(" values of digits:\n");
for (ch = '0'; ch <= '9'; ch++) {
printf("%c: %d\n", ch, ch);
}
printf(" values of special symbols:\n");
printf("$: %d\n", '$');
printf("*: %d\n", '*');
printf("+: %d\n", '+');
printf("/: %d\n", '/');
printf("Blank Character: %d\n", ' ');
}
```

……

```
#include <stdio.h>
int main()
{
```

```
char ch;
printf("Enter a character: ");
scanf("%c", &ch);
printf("value of '%c': %d\n", ch, ch);
}
```

07.

```
#include <stdio.h>
int main()
{
float basicSalary;
int yearsOfService;
char city;
float additionalAllowance = 0,bonus = 0,grossRemuneration;
printf("Enter the basic salary: ");
scanf("%f", &basicSalary);
printf("Enter the number of years of service: ");
scanf("%d", &yearsOfService);
printf("Enter the city: ");
scanf(" %c", &city);
if (yearsOfService > 5)
additionalAllowance += 0.10 * basicSalary;
if (city == 'C')
additionalAllowance += 2500;
if (basicSalary >= 50000)
bonus += 0.15 * basicSalary;
else if (basicSalary >= 25000)
bonus += 0.12 * basicSalary;
else
bonus += 0.10 * basicSalary;
grossRemuneration = basicSalary + additionalAllowance + bonus;
printf("Gross Monthly Remuneration: %.2f\n", grossRemuneration);
}
```

Practical 04

01.

```
#include <stdio.h>
int main()
```

```
{
int number;
printf("Enter an integer: ");
scanf("%d", &number);
if (number % 2 == 0) {
printf("%d is even.\n", number);
} else {
printf("%d is odd.\n", number);
}
return 0;
}
```

Re-write the above program using a switch statement instead of an If-Else statement!

```
#include <stdio.h>
int main() {
int number;
printf("Enter an integer: ");
scanf("%d", &number);
switch (number % 2) {
case 0:
printf("%d is even.\n", number);
break;
case 1:
printf("%d is odd.\n", number);
break;
}
return 0;
}
```

02.

```
 #include <stdio.h>
int main()
{
 int ch,n_1,n_2,add,sub,mult;
 float div;
 printf("Menu:\n");
 printf("1.Addition\n");
 printf("2.Subtraction\n");
 printf("3.multiplication\n");
 printf("4.Divition\n");
```

```
 printf("Enter your choice:\n");
 scanf("%d",&ch);
 printf("Enter first value:\n");
 scanf("%d",&n_1);
 printf("Enter second value:\n");
 scanf("%d",&n_2);
 add=n_1+n_2;
 sub=n_1-n_2;
 mult=n_1*n_2;
 div=n_1/n_2;
 switch(ch)
 {
 case 1:printf("addition = %d\n",add);break;
 case 2:printf("subtraction = %d\n",sub);break;
 case 3:printf("Multiplication = %d\n",mult);break;
 default:printf("divition = %f\n",div);
 }
 return 0;
}
```

03.

```
 #include <stdio.h>
#define PI 3.14159
int main()
{
       int choice;
       float radius, result;
       printf("Menu:\n");
       printf("1. Calculate Circumference of a Circle\n");
       printf("2. Calculate Area of a Circle\n");
       printf("3. Calculate Volume of a Sphere\n");
       printf("Enter your choice (1-3): ");
       scanf("%d", &choice);
      printf("Enter the radius: ");
      scanf("%f", &radius);
switch (choice)
{
        case 1:
       result = 2 * PI * radius;
       printf("Circumference: %.2f\n", result);
       break;
       case 2:
```

```
        result = PI * radius * radius;
        printf("Area: %.2f\n", result);
        break;
        case 3:
        result = (4.0 / 3.0) * PI * radius * radius * radius;
        printf("Volume: %.2f\n", result);break;default:
        printf("Invalid choice.\n");
}
return 0;
}
```

04

```
#include <stdio.h>
int main()
{
char vowal;
printf("Enter a character: ");
scanf("%c", &vowal);
switch (vowal)
{
case 'a':
printf("vowel\n");break;
case 'e':
printf("vowel\n");break;
case 'i':
printf("vowel\n");break;
case 'o':
printf("vowel\n");break;
case 'u':
printf("vowel\n");break;
default:
printf("not a vowel!\n");break;
}
}
```

05.

```
#include <stdio.h>
int main()
{
```

```
int month;
printf("Enter the month number (1-12): ");
scanf("%d", &month);
switch (month) {
case 1:
printf("January has 31 days.\n");break;
case 2:
printf("February has 28 days.\n");break;
case 3:
printf("March has 31 days.\n");break;
case 4:
printf("April has 30 days.\n");break;
case 5:
printf("May has 31 days.\n");break;
case 6:
printf("June has 30 days.\n");break;
case 7:
printf("July has 31 days.\n");break;
case 8:
printf("August has 31 days.\n");break;
case 9:
printf("September has 30 days.\n");break;
case 10:
printf("October has 31 days.\n");break;
case 11:
printf("November has 30 days.\n");break;
case 12:
printf("December has 31 days.\n");break;
default:
printf("Invalid month number.\n");break;
}
return 0;
}
```

Practical as 05

Section A

01.

Using while loop

```
#include <stdio.h>
int main()
{
 int x=0;
 while(x<=100)
 {
 printf("%d ",x);
 x++;
 }
 return 0;
}
```

Using do-while loop

```
#include <stdio.h>
int main()
{
 int x=0;
 do
 {
 printf("%d ",x);
 x++;
 }while(x<=100);
 return 0;
}
```

Using for loop

```
#include <stdio.h>
int main()
{
```

```
 int x;
 for(x=0;x<=100;x++)
 printf("%d ",x);
 return 0;
}
```

02.

```
 #include <stdio.h>
int main()
#include <stdio.h>
int main()
{
int marks[10];
int total = 0;
printf("Enter 10 marks:\n");
for (int i = 0; i < 10; i++) {
scanf("%d", &marks[i]);
total += marks[i];
}
float average = (float)total / 10;
printf("Total: %d\n", total);
printf("Average: %.2f\n", average);
if (average < 50) {
printf("Fail!\n");
} else {
printf("Pass!\n");
}
return 0;
}
```

03.

```
#include <stdio.h>
int main()
{
int number;
int factorial = 1;
printf("Enter a number: ");
scanf("%d", &number);
if (number < 0) {
printf("Factorial is not defined for negative numbers.\n");
```

```
} else {
for (int i = 1; i <= number; i++) {
factorial *= i;
}
printf("Factorial of %d is %d\n", number, factorial);
}
return 0;
}
```

04.

```
#include <stdio.h>
int main()
{
int number, sum = 0;
printf("Enter a number: ");
scanf("%d", &number);
int remainder;
while (number > 0)
{
remainder = number % 10;
sum += remainder;
number /= 10;
}
printf("Sum of digits: %d\n", sum);
return 0;
}
```

05.

```
#include <stdio.h>
int main()
{
 int number,remind;
 float x;
 printf("enter number:\n");
 scanf("%d",&number);
 do
 {
 remind=number%10;
 number=number/10;
 printf("%d ",remind);
 }
```

```
while(number!=0);
 return 0;
}
```

06.

```
 #include <stdio.h>
int main()
{
 int base,power,value=1,i=0;
 printf("Enter base value:\n");
 scanf("%d",&base);
 printf("Enter power of value:\n");
 scanf("%d",&power);
 if(power==0)
 {
 value=1;
 }
 else
 {
 while(power>i)
 {
 value=value*base;
 i++;
 }
 }
 printf("%d power of %d number is %d\n",power,base,value);
 return 0;
}
```

07.

```
#include <stdio.h>
int main()
{
 int first=0,second=1,next,count=3;
 printf("First 10 numbers of Fibonacci Sequence:\n");
 printf("%d %d ",first,second);
 while(count<=10)
 {
 count++;
 (next=first+second);
```

```
 printf("%d ",next);
 first=second;
 second=next;
 }
return 0;
}
```

08.

```
#include <stdio.h>
int main()
{
 int num, orig_num, remaind, digits = 0, result = 0;
 printf("Enter a number: ");
 scanf("%d", &num);
 orig_num = num;

 while (orig_num != 0) {
 orig_num /= 10;
 digits++;
 }
 orig_num = num;

 while (orig_num != 0) {
 remaind = orig_num % 10;
 result += pow(remaind, digits);
 orig_num /= 10;
 }

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

09.

```
#include <stdio.h>
 int main()
 {
```

```
char letter;
printf("ASCII values for letters A to Z:\n");
for (letter = 'A'; letter <= 'Z'; letter++)
{
printf(" ASCII value of %c is %d\n", letter, letter);
}
return 0;
}
```

10.

```
#include <stdio.h>
int main()
{
 printf("*\n");
 printf("**\n");
 printf("***\n");
 printf("****\n");
 printf("*****\n");
return 0;
}
```

11.

```
#include <stdio.h>
 int isPrime(int num) {
 int i;
 if (num<= 1)
 {
 return 0;
 }
 for (i = 2; i < num; i++)
 {
 if (num % i == 0) {
 return 0;
 }
 }
 return 1;
 }
 int main()
 {
 int num;
 printf("Enter a number: ");
 scanf("%d", &num);
 if (isPrime(num))
 {
 printf("%d is a prime number.\n", num);
 }
 else
 {
```

```
 printf("%d is not a prime number.\n", num);
 }
return 0;
}
```

12.

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

13.

```
#include <stdio.h>
 int main()
{
 int num,tot=0;
 printf("Enter number:\n");
 while(1)
 {
 scanf("%d",&num);
 if(num==-1)
 {
 break;
 }
```

```
 tot=tot+num;
 }
 printf("total = %d",tot);
 return 0;
}
```

14.

```
#include <stdio.h>
 int main()
 {
 int arr[10];
 int i;
 printf("Enter 10 numbers(integers):\n");
 for(i=0;i<10;i++)
 {
 scanf("%d",&arr[i]);
 }
 printf("you entered array is :\n");
 for(i=0;i<10;i++)
 {
 printf("%d ",arr[i]);
 }
 printf("\n");
 return 0;
}
```

15.

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

```
 printf("you entered array is :\n");
 for(i=0;i<10;i++)
 {
 printf("%d ",arr[i]);
 }
 printf("\n");
 printf(" There are %d even numbers in array",count);
 return 0;
}
```

Section B

01.

```
#include <stdio.h>
int main()
{
 int i,num,p_count=0,n_count=0,z_count=0;
 for(i=0;i<10;i++)
 {
 printf("Enter number:\n");
 scanf("%d",&num);
 if(num==0)
 {
 z_count++;
 }
 else if(num<0)
 {
 n_count++;
 }
 else
 {
 p_count++;
 }
 }
 printf(" %d of positive numbers in there\n %d of negative numbers in there\n %d of zeros in
there",p_count,n_count,z_count);
 return 0;
}
```

02.

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

03.

```
#include <stdio.h>
int main()
{
 int count,price,i;
 float avg,tot=0;
 for(count=1;count<=10;count++)
 {
 printf("enter %d item price:\n",count);
```

```
 scanf("%d",&price);
 tot=tot+price;
 if(price>200)
 {
 i++;
 }
 }
 avg=tot/10;
 printf("%f is the average value of Items\n",avg);
 printf("%d of items which the price is greater than 200\n",i);
 return 0;
}
```

04.

```
#include <stdio.h>
 int main()
 {
 int emp_no;
 float basic_salary;
 int count= 0;
 printf("Enter the Employee number and Basic Salary (Enter -999 for Employeenumber to stop):\n");
 while (1) {
 printf("Employee No: ");
 scanf("%d", &emp_no);
 if (emp_no == -999)
 {
 break;
 }
 printf("Basic Salary: ");
 scanf("%f", &basic_salary);
 if (basic_salary >= 5000) {
 count++;
 }
 }
 printf("Number of Employees with Basic Salary >= 5000: %d\n", count);
 return 0;
 }
```

05.

```
#include <stdio.h>
 int main()
 {
 int emp_num,hours,over_time_1=150,over_time_2=200,over_time_pay,i=0,count=0;
 float percentage;
 printf("Enter Employee number and worked hours(if you want to stop enter -999 as the Employee
number)\n");
 while(1)
 {
 printf("Employee number:\n");
 scanf("%d",&emp_num);
 if(emp_num==-999)
 {
 break;
 }
 printf("Enter worked hours:\n");
 scanf("%d",&hours);
 (over_time_pay = (hours> 40) ? (40 * over_time_1 + (hours- 40) * over_time_2) :
 (hours* over_time_1));
 printf("over time payment is %d\n",over_time_pay);
 i++;
 if(over_time_pay>4000)
 {
 count++;
 }
 }
 percentage=(float)count/i*100;
 printf("Percentages of employees whose over time payment exceeds Rs.4000:%.2f%%\n",percentage);
return 0;
}
```