**214189E – SENARATHNA G.G.P.C.**

**Exercise:**

**01) a)**

#include <stdio.h>  
  
int main() {  
 int i = 1; // initialization.  
 while(i <= 10) { // condition.  
 printf("%d\n", i);  
 i++; // increment value.  
 }  
 return 0;  
}

**b)**

#include <stdio.h>  
  
int main() {  
 int i = 10; // initialization.  
 while(i > 0) { // condition.  
 printf("%d\n", i);  
 i--; // decrement.  
 }  
}

**c)**

#include <stdio.h>  
  
int main() {  
 int i = 1; // initialization.  
 while(i < 10) { // condition.  
 printf("%d\n", i);  
 i += 2; // increment by 2;  
 }  
}

**`**

**d)**

#include <stdio.h>  
  
int main() {  
 int i = 1; // initialization.  
 while(i <= 52) { // condition.  
 printf("%d\n", i);  
 i += 3; // increment value by 3.  
 }  
}

**e)**

#include <stdio.h>  
  
int main() {  
 int i = 2; // initialization.  
 while(i <= 33) { // condition.  
 printf("%d\n", i);  
 i = i\*2 - 1; // modify value.  
 }  
}

**f)**

#include <stdio.h>  
  
int main() {  
 int i = 3;  
 while(i < 100) {  
 printf("%d\n", i);  
 i += 2;  
 }  
}

**g)**

#include <stdio.h>  
  
int main() {  
 int i = 2; // initialization.  
 while(i < 100) { // condition.  
 printf("%d\n", i);  
 i += 2; // update value.  
 }  
}

**h)**

#include <stdio.h>  
  
int main() {  
 int i = 3; // initialization.  
 while(i < 100) { // condition.  
 printf("%d\n", i);  
 i += 3; // modify value.  
 }  
}

**02)**

#include <stdio.h>  
  
int main() {  
 int count,i = 1; // initialization.  
 while(i <= 20) { // condition.  
 printf("%d\t", i);  
 i++; // modify i value.  
 count++;  
 if(count % 5 == 0) {  
 printf("\n");  
 }  
 }  
 return 0;  
}

**03)**

#include <stdio.h>  
  
int main() {  
 int i = 2,sum; // initialization.  
 while(i <= 50) { // condition.  
 sum = sum + i;  
 i += 2; // update value.  
 }  
 printf("%d", sum);  
}

**04)**

#include <stdio.h>  
  
int main() {  
 int i = 1,product = 1; // initialization.  
 while(i < 30) { // condition.  
 product = product \* i;  
 i += 2; // modify value.  
 }  
 printf("%d", product);  
 return 0;  
}

**05)**

#include <stdio.h>  
  
int main() {  
 int i = 3,sum; // initialization  
 while(i < 99) { // condition.  
 sum = sum + i;  
 i += 2; // modify i value.  
 }  
 printf("%d", sum);  
}

**06) a)**

#include <stdio.h>  
  
int main() {  
 int i = 1,sum; // initialization.  
 while(i <= 10) { // condition.  
 sum = sum + i;  
 i++; // increment.  
 }  
 printf("%d", sum);  
}

**b)**

#include <stdio.h>  
  
int main() {  
 int i = 1,mul = 1; // initialization.  
 while(i <= 10) { // condition.  
 mul = mul \* i;  
 i++; // increment.  
 }  
 printf("%d", mul);  
}

**c)**

#include <stdio.h>  
  
int main() {  
 int i = 2,count; // initialization.  
 while(i <= 100) { // condition.  
 i += 2; // update i value.  
 count++;  
 }  
 printf("%d", count);  
}

**d)**

#include <stdio.h>  
  
int main() {  
 int i = 1,count; // initialization.  
 while(i < 100) { // condition.  
 i += 2; // modify i value.  
 count++;  
 }  
 printf("%d", count);  
}

**07)**

#include <stdio.h>  
  
int main() {  
 char name[30]; // declare name variable by string.  
 char id[30]; // declare id variable by string.  
 int duration; // declare duration variable by integer.  
  
 printf("Input your name : \n"); // output function.  
 scanf("%s", &name); // input function.  
 printf("Input your id number : \n");  
 scanf("%s", &id);  
 printf("Input duration time : \n");  
 scanf("%d", &duration);  
  
 int n = duration; // now, I want to declare n variable by integer.  
 float x = 200,fees,tot\_fees,ann\_fees; // x means first year fees,fees means amount accumulated in future years,tot\_fees means total fees ans ann\_fees means annual fees.  
 while(duration > 1) { // condition statement.  
 x = x \* 1.05;  
 fees = fees + x;  
 duration--; // modify statement.  
 }  
 tot\_fees = fees + 200;  
 ann\_fees = tot\_fees / n; // n means duration time.  
 printf("Annual course fees is : $ %f and Total course fees is : $ %f", ann\_fees,tot\_fees);  
}

**08)**

#include <stdio.h>  
  
int main() {  
 float f\_number,s\_number,Answer;  
 char operator,ch;  
  
 do {  
 printf("Input the expression : \n");  
 scanf("%f%c%f", &f\_number,&operator,&s\_number);  
  
 switch(operator) {  
 case '+':  
 Answer = f\_number + s\_number;  
 break;  
 case '-':  
 Answer = f\_number - s\_number;  
 break;  
 case '\*':  
 Answer = f\_number \* s\_number;  
 break;  
 case '/':  
 Answer = f\_number / s\_number;  
 break;  
 }  
 printf("Answer = %f\n", Answer);  
 printf("Do You Want to Try It Again(y/n)?");  
 scanf(" %c", &ch);  
  
 }while(ch == 'y');  
 if(ch == 'n')  
 printf("Goodbye");  
 else  
 printf("Invalid character.");  
 return 0;  
}

**09)**

#include <stdio.h>  
  
int main() {  
 float g\_salary,e\_salary;  
 do {  
 printf("Input the salesperson's gross sales for the last week : \n");  
 scanf("%f", &g\_salary);  
  
 if(g\_salary == -1) {  
 break;  
 }else {  
 e\_salary = 200.00 + g\_salary \* 0.09;  
 printf("salesperson's earnings : %f\n", e\_salary);  
 }  
 }while(1);  
}

**10)**

#include <stdio.h>  
  
int main() {  
 int num,rev;  
 printf("Enter the number : ");  
 scanf("%d", &num);  
  
 while(num > 0) {  
 rev = num % 10;  
 printf("%d", rev);  
 num = num / 10;  
 }  
 return 0;  
}

**11)**

#include <stdio.h>  
  
int main() {  
 int num,count,rev,mul = 1,sum,cnt;  
 printf("Enter the number : ");  
 scanf("%d", &num);  
  
 int n = num;  
 while(n != 0) {  
 n = n / 10;  
 count++;  
 }  
 cnt = count;  
 n = num;  
 while(n != 0) {  
 rev = n % 10;  
 while(cnt != 0) {  
 mul = mul \* rev;  
 cnt--;  
 }  
 sum = sum + mul;  
 cnt = count;  
 n = n / 10;  
 mul = 1;  
 }  
 if(sum == num) {  
 printf("%d is an Armstrong Number.", num);  
 }else {  
 printf("%d is not an Armstrong Number.", num);  
 }  
 return 0;  
}

**12)**

#include <stdio.h>  
  
int main() {  
 int num1,num2,R;  
 printf("Enter two numbers : ");  
 scanf("%d%d", &num1,&num2);  
  
 if(num1 < num2) {  
 while(num1 != 0) {  
 R = num2 % num1;  
 num2 = num1;  
 num1 = R;  
 }  
 printf("%d", num2);  
 }else {  
 while(num2 != 0) {  
 R = num1 % num2;  
 num1 = num2;  
 num2 = R;  
 }  
 printf("%d", num1);  
 }  
}

**13)**

**Method – 01,**

#include <stdio.h>  
  
int main() {  
 int num1,num2,x;  
 printf("Enter two numbers : ");  
 scanf("%d%d", &num1,&num2);  
  
 if(num1 < num2) {  
 if(num2 % num1 == 0) {  
 printf("%d", num2);  
 }else {  
 x = num1 \* num2;  
 printf("%d", x);  
 }  
 }else {  
 if(num1 % num2 == 0) {  
 printf("%d", num1);  
 }else {  
 x = num1 \* num2;  
 printf("%d", x);  
 }  
 }  
}

**Method - 02,**

#include <stdio.h>  
  
int main() {  
 int num1,num2,p = 0,q = 0,x = 0,y = 0;  
 printf("Input two numbers : \n");  
 scanf("%d%d", &num1,&num2);  
  
 p = num1;  
 q = num2;  
 if(p > q) {  
 if(p % q == 0) {  
 printf("Lowest Common Multiple : %d", p);  
 }else {  
 do {  
 p++;  
 x = p%num1;  
 y = p%num2;  
 }while(x != y);  
 printf("Lowest Common Multiple : %d", p);  
 }  
 }else if(p < q) {  
 do {  
 q++;  
 x = q%num1;  
 y = q%num2;  
 }while(x != y);  
 printf("Lowest Common Multiple : %d", q);  
 }else {  
 printf("Lowest Common Multiple : %d", p);  
 }  
}

**14)**

#include <stdio.h>  
  
int main() {  
 int num,count;  
 printf("Input the number : ");  
 scanf("%d", &num);  
  
 while(num != 0) {  
 num = num/10;  
 count++;  
 }  
 printf("Number of Digits : %d", count);  
}

**15)**

#include <stdio.h>  
  
int main() {  
 int num,pow,x = 1;  
 printf("Enter the number and power's number : ");  
 scanf("%d%d", &num,&pow);  
  
 while(pow > 0) {  
 x = x \* num;  
 pow--;  
 }  
 printf("%d", x);  
}

**16)**

#include <stdio.h>  
  
int main() {  
 int num,rev,sum;  
 printf("Input a number : ");  
 scanf("%d", &num);  
  
 int n = num;  
 while(num > 0) {  
 rev = num % 10;  
 sum = (sum \* 10) + rev;  
 num = num / 10;  
 }  
 if(n == sum)  
 printf("Palindrome Number");  
 else  
 printf("Not Palindrome Number");  
}

**17)**

**Method – 01,**

#include <stdio.h>  
int main() {  
 int num,count1 = 0,count2 = 0,count3 = 0,sum1 = 0,sum2 = 0,max = 0,min = 0;  
  
 printf("Input a number : \n");  
 do {  
 scanf("%d", &num);  
  
 if(num == 0){  
 break;  
 }  
 if(num > 0) {  
 count1++;  
 sum1 = sum1 + num;  
 }else if(num < 0) {  
 count2++;  
 sum2 = sum2 + num;  
 }  
 if((num % 3 == 0) && (num != 0)) {  
 count3++;  
 }  
 if(num > max)  
 max = num;  
 else if(num < min)  
 min = num;  
 }while(1);  
 printf("Number of positive integers:%d\n", count1);  
 printf("Number of negative integers:%d\n", count2);  
 printf("Sum of positive integers:%d\n", sum1);  
 printf("Sum of negative integers:%d\n", sum2);  
 printf("Number of multipliers of 3 :%d\n", count3);  
 printf("Maximum number: %d\n", max);  
 printf("Minimum number: %d\n", min);  
 return 0;  
}

**Methods – 02,**

#include <stdio.h>  
int main() {  
 int num, countP = 0, countN = 0, sumP = 0, sumN = 0, mul3 = 0, max = 0, min = 0;  
 printf("Enter the numbers: \n");  
 do{  
 scanf(" %d", &num);  
 if(num > 0){  
 countP++;  
 sumP += num;  
  
 }  
 if(num < 0){  
 countN++;  
 sumN += num;  
 }  
 if((num % 3 == 0) && (num != 0))  
 mul3++;  
 if(num > max)  
 max = num;  
 else if(num < min)  
 min = num;  
  
 }while(num != 0);  
 printf("No. of positive integers: %d\n", countP);  
 printf("No. of negative integers: %d\n", countN);  
 printf("Sum of positve intrgers: %d\n", sumP);  
 printf("Sum of negative integers: %d\n", sumN);  
 printf("No. of integers divisible by 3: %d\n", mul3);  
 printf("Maximum number: %d\n", max);  
 printf("Minimum number: %d\n", min);  
 return 0;  
}