COMPUTER ASSIGNMENT - 1 (1ST YEAR)

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Section- AY

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Q1. Write a C program for calculating the price of a product after adding the sales tax to its original price. Where rate of tax and price is inputted by user.

CODE -

```
#include <stdio.h>

int main() {
   float originalPrice, taxRate, totalPrice;

   // Input original price and tax rate from the user
   printf("Enter the original price of the product: ");
   scanf("%f", &originalPrice);

   printf("Enter the tax rate (in percentage): ");
   scanf("%f", &taxRate);

   // Calculate the total price including tax
   totalPrice = originalPrice + (originalPrice * (taxRate / 100));

   // Display the total price
   printf("The total price including tax is: %.2f\n", totalPrice);

   return 0;
```

}

OUTPUT –

```
Enter the original price of the product: 100
Enter the tax rate (in percentage): 10
The total price including tax is: 110.00

--------------------------------
Process exited after 12.58 seconds with return value 0
Press any key to continue . . .
```

-

Q2. Write a C program to calculate the weekly wages of an employee. The pay depends on wages per hour and number of hours worked. Moreover, if the employee has worked for more than 30 hours, then he or she gets twice the wages per hour, for every extra hour that he or she has worked.

CODE -

```
#include <stdio.h>

int main() {
   float wagesPerHour, hoursWorked, weeklyWages;

   // Input wages per hour and hours worked from the user
   printf("Enter the wages per hour: ");
   scanf("%f", &wagesPerHour);

   printf("Enter the number of hours worked: ");
   scanf("%f", &hoursWorked);

   // Calculate weekly wages
   if (hoursWorked <= 30) {
      weeklyWages = wagesPerHour * hoursWorked;
   } else {
      // Calculate wages for the first 30 hours
      weeklyWages = wagesPerHour * 30;
```

```
    // Calculate extra wages for hours beyond 30
    weeklyWages += (wagesPerHour * 2) * (hoursWorked - 30);
  }

  // Display the weekly wages
  printf("The weekly wages of the employee is: %.2f\n", weeklyWages);

  return 0;
}
```

OUTPUT –

```
Enter the wages per hour: 10
Enter the number of hours worked: 31
The weekly wages of the employee is: 320.00

--------------------------------
Process exited after 5.664 seconds with return value 0
Press any key to continue . . .
```

Q.3 Mr. X goes to market for buying some fruits and vegetables. He is having a currency of Rs 500 with him for marketing. From a shop, he purchases 2.0 kg Apple priced Rs. 50.0 per kg, 1.5 kg Mango priced Rs.35.0 per kg, 2.5 kg Potato priced Rs.10.0 per kg, and 1.0 kg Tomato priced Rs.15 per kg. He gives the currency of Rs. 500 to the shopkeeper. Find out the amount shopkeeper will return to X by writing a C program.

CODE-

```
#include <stdio.h>

int main() {
  // Define the prices and quantities
  float applePricePerKg = 50.0;
  float mangoPricePerKg = 35.0;
  float potatoPricePerKg = 10.0;
  float tomatoPricePerKg = 15.0;
```

```
    float appleQuantity = 2.0;
    float mangoQuantity = 1.5;
    float potatoQuantity = 2.5;
    float tomatoQuantity = 1.0;

    float totalCost = (applePricePerKg * appleQuantity) +
                      (mangoPricePerKg * mangoQuantity) +
                      (potatoPricePerKg * potatoQuantity) +
                      (tomatoPricePerKg * tomatoQuantity);

    float currencyWithMrX = 500.0;

    // Calculate the amount to be returned
    float amountToReturn = currencyWithMrX - totalCost;

    // Display the amount to be returned
    printf("The shopkeeper will return Rs. %.2f to Mr. X\n", amountToReturn);

    return 0;
}
```

OUTPUT

```
The shopkeeper will return Rs. 307.50 to Mr. X

--------------------------------
```

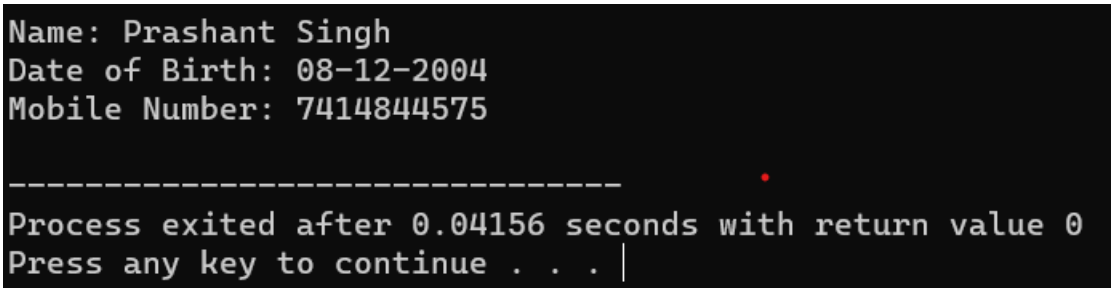
Q4. Write a C program to print your name, date of birth and mobile number in 3 different lines.

CODE -

```
#include <stdio.h>

int main() {
    printf("Name: Prashant Singh\n");
    printf("Date of Birth: 08-12-2004\n");
    printf("Mobile Number: 7414844575\n");
```

```
    return 0;
}
```

OUTPUT -



Q5. Write a C program to read an integer, a character and a float value from keyboard and display the same in different lines on the screen.

CODE –

```
#include <stdio.h>
int main() {
    int integerInput;
    char charInput;
    float floatInput;

    printf("Enter an integer: ");
    scanf("%d", &integerInput);

    printf("Enter a character: ");
    scanf(" %c", &charInput);

    printf("Enter a float: ");
    scanf("%f", &floatInput);

    // Display the inputs on separate lines
    printf("Integer: %d\n", integerInput);
    printf("Character: %c\n", charInput);
    printf("Float: %.2f\n", floatInput);

    return 0;
```

}

OUTPUT -

```
Enter an integer: 1
Enter a character: A
Enter a float: 1.2
Integer: 1
Character: A
Float: 1.20

--------------------------------
Process exited after 9.893 seconds with return value 0
Press any key to continue . . .
```

Q6. Write a program to print the following line (Assume the total value is contained in a variable named cost)

The sales total is : $ 172.53

CODE –

```
#include <stdio.h>


int main() {
   float cost = 172.53;
   printf("The sales total is: $ %.2f\n", cost);
   return 0;
}
```

OUTPUT -

```
The sales total is: $ 172.53

--------------------------------
Process exited after 0.0706 seconds with return value 0
Press any key to continue . . .
```

Q7. Raju got 6 and half apples from each of Raghu, Sheenu and Akash. He wants to know how many apples he has in total without adding them. Write a C program which could help Raju in doing this.

CODE -

```
#include <stdio.h>
int main() {
   // Define the number of apples Raju got from each person
```

```
    double apples_from_raghu = 6.5;
    double apples_from_sheenu = 6.5;
    double apples_from_akash = 6.5;

    // Calculate the total number of apples without adding them
    double total_apples = apples_from_raghu * 3;

    // Display the total number of apples
    printf("Raju has %.2lf apples in total without adding them.\n", total_apples);

    return 0;
}
```

OUTPUT -

```
Raju has 19.50 apples in total without adding them.

--------------------------------
Process exited after 0.0557 seconds with return value 0
Press any key to continue . . .
```

Q8. Write a C program that prints the floating point value in exponential format correct to two decimal places.

CODE -

```
#include <stdio.h>

int main() {
    double value;

    // Input the floating-point value
    printf("Enter a floating-point value: ");
    scanf("%lf", &value);

    // Format and print the value in exponential notation with two decimal places
    printf("Formatted value: %.2e\n", value);
```

```
    return 0;
}
```

Q9. Write a C program to input and print your mobile number (i.e. of 10 digits).

CODE-

```
#include <stdio.h>

int main() {
    int mobileNumber;

    // Prompt the user to enter the mobile number
    printf("Please enter your 10-digit mobile number: ");

    // Read the mobile number from the user
    scanf("%d", &mobileNumber);

    // Check if the entered number is a 10-digit number
    if (mobileNumber >= 1000000000LL && mobileNumber <= 9999999999LL) {
        // Print the mobile number
        printf("Your mobile number is: %d\n", mobileNumber);
    } else {
        printf("Invalid mobile number. Please enter a 10-digit number.\n");
    }

    return 0;
}
```

OUTPUT -

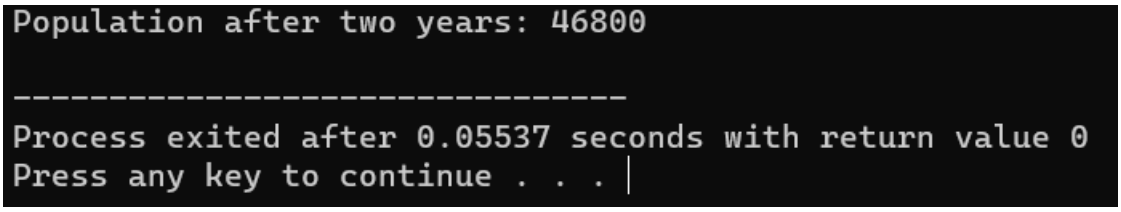
```
Please enter your 10-digit mobile number: 1234567899
Your mobile number is: 1234567899

--------------------------------
Process exited after 11.38 seconds with return value 0
Press any key to continue . . .
```

Q10.The population of a city is 30000. It increases by 20 % during first year and 30% during the second year. Write a C program to find the population after two years? (Ans: 46800)

CODE-

```
#include <stdio.h>

int main() {
    int initialPopulation = 30000;
    float growthRateYear1 = 0.20; // 20% growth in the first year
    float growthRateYear2 = 0.30; // 30% growth in the second year

    // Calculate the population after the first year
    int populationAfterYear1 = initialPopulation + (int)(initialPopulation * growthRateYear1);

    // Calculate the population after the second year
    int populationAfterYear2 = populationAfterYear1 + (int)(populationAfterYear1 * growthRateYear2);

    printf("Population after two years: %d\n", populationAfterYear2);

    return 0;
}
```

OUTPUT -



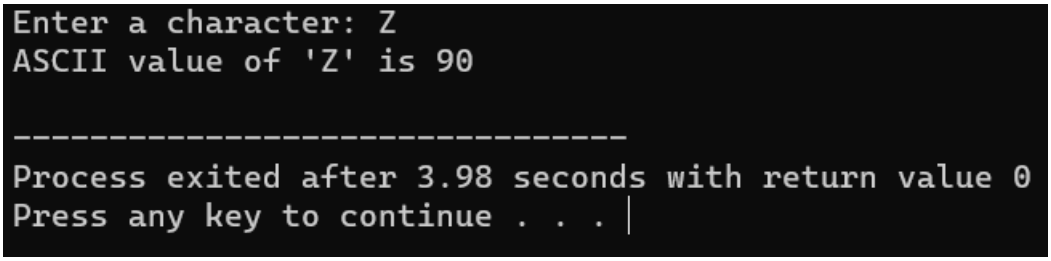
Q11. Write a C program to find the ASCII value of a character.

CODE-

```
#include <stdio.h>

int main() {
    char character;

    // Prompt the user to enter a character
    printf("Enter a character: ");

    // Read the character from the user
    scanf("%c", &character);

    // Calculate and print the ASCII value of the character
```

```
    printf("ASCII value of '%c' is %d\n", character, character);

    return 0;
}
```

OUTPUT-



Q12. Write a C program to calculate salary of an employee, given his basic pay (entered by user), HRA=15% of the basic pay and TA=20% of the basic pay.

CODE –

```
#include <stdio.h>

int main() {
    float basicPay, hra, ta, salary;

    // Prompt the user to enter the basic pay
    printf("Enter the basic pay: ");
    scanf("%f", &basicPay);

    // Calculate HRA (15% of basic pay) and TA (20% of basic pay)
    hra = 0.15 * basicPay;
    ta = 0.20 * basicPay;

    // Calculate the salary
    salary = basicPay + hra + ta;

    // Display the calculated salary
    printf("Salary: %.2f\n", salary);

    return 0;
}
```

OUTPUT -

```
Enter the basic pay: 10000
Salary: 13500.00

--------------------------------
Process exited after 6.487 seconds with return value 0
Press any key to continue . . .
```

Q13. Write a C program to find the slope of a line and angle of inclination that passes through two points P and Q with coordinates (xp, yp) and (xq, yq) respectively.

CODE-

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

int main() {
   double xp, yp, xq, yq, slope, angle;



   printf("Enter the coordinates of point P (xp yp): ");
   scanf("%lf %lf", &xp, &yp);

   printf("Enter the coordinates of point Q (xq yq): ");
   scanf("%lf %lf", &xq, &yq);

   // Calculate the slope
   slope = (yq - yp) / (xq - xp);

   // Calculate the angle of inclination in radians
   angle = atan(slope);

   // Convert the angle to degrees
   angle = angle * 180.0 / M_PI;

   // Display the slope and angle of inclination
   printf("Slope of the line: %.2lf\n", slope);
   printf("Angle of inclination (in degrees): %.2lf\n", angle);
```

```
    return 0;
}
```

Q14. The SPI (Semester Performance Index) is a weighted average of the grade points earned by a student in all the courses he registered for in a semester. If the grade points associated with the letter grades awarded to a student are g1, g2, g3,…….gk etc. and the corresponding credits are c1, c2, c3,…..ck, the SPI is given by:

Where, k is the number of courses for which the candidate remains registered for during the semester/ trimester. Write a program in C to calculate SPI for k =5.

CODE-

```
#include <stdio.h>

int main() {
    int k = 5; // Number of courses
    double gradePoints[k];
    double credits[k];
    double spi = 0.0;

    // Input grade points and credits for each course
    printf("Enter the grade points and credits for each course:\n");
    for (int i = 0; i < k; i++) {
        printf("Course %d:\n", i + 1);
        printf("Grade Points: ");
        scanf("%lf", &gradePoints[i]);
        printf("Credits: ");
        scanf("%lf", &credits[i]);
    }

    // Calculate SPI
    for (int i = 0; i < k; i++) {
        spi += (gradePoints[i] * credits[i]);
    }

    spi /= 0.0;

    printf("SPI for k = 5: %.2lf\n", spi);
```

```
    return 0;
}
```

```
Enter the grade points and credits for each course:
Course 1:
Grade Points: 2
Credits: 2
Course 2:
Grade Points: 2
Credits: 2
Course 3:
Grade Points: 3
Credits: 4
Course 4:
Grade Points: 5
Credits: 3
Course 5:
Grade Points: 6
Credits: 7
SPI for k = 5: 1.#J

--------------------------------
Process exited after 21.84 seconds with return value 0
Press any key to continue . . .
```

OUTPUT -

Q 15. Write a C program to calculate the frequency (f) of a given wave with wavelength (λ) and speed (c), where c=λ*f.

CODE-

```
#include <stdio.h>

int main() {
    double wavelength, speed, frequency;

    // Prompt the user to enter the wavelength and speed
    printf("Enter the wavelength (in meters): ");
    scanf("%lf", &wavelength);

    printf("Enter the speed (in meters per second): ");
    scanf("%lf", &speed);

    // Calculate the frequency
    frequency = speed / wavelength;
```

```
    // Display the calculated frequency
    printf("Frequency of the wave: %.2lf Hz\n", frequency);

    return 0;
}
```

OUTPUT -

```
Enter the wavelength (in meters): 10
Enter the speed (in meters per second): 20
Frequency of the wave: 2.00 Hz
```

Q 16. A car travelling at 30 m/s accelerates steadily at 5 m/s2 for a distance of 70 m. What is the final velocity of the car? [Hint: v2 = u2 + 2as]

CODE-

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

int main() {
    // Given values
    double initial_velocity = 30.0;  // m/s
    double acceleration = 5.0;       // m/s^2
    double distance = 70.0;          // meters

    // Calculate the final velocity using the formula
    double final_velocity = sqrt(pow(initial_velocity, 2) + 2 * acceleration * distance);

    // Print the final velocity
    printf("The final velocity of the car is %.2lf m/s\n", final_velocity);

    return 0;
}
```

OUTPUT -

```
The final velocity of the car is 40.00 m/s
```

Q 17. A horse accelerates steadily from rest at 4 m/s2 for 3s. (a) What is its final velocity? (b) How far has it travelled? [Hint: (a) v = u + at (b) s = ut + ½at2]

CODE-

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

```
int main() {
   // Given values
   float initial_velocity = 0.0; // m/s (starting from rest)
   float acceleration = 4.0;     // m/s^2
   float time = 3.0;           // seconds

   // Calculate the final velocity using the formula v = u + at
   float final_velocity = initial_velocity + (acceleration * time);

   // Calculate the distance traveled using the formula s = ut + (1/2)at^2
   float distance_traveled = (initial_velocity * time) + (0.5 * acceleration * time * time);

   // Print the results
   printf("The final velocity of the horse is %.2lf m/s\n", final_velocity);
   printf("The distance traveled by the horse is %.2lf meters\n", distance_traveled);

   return 0;
}
```

OUTPUT -

```
The final velocity of the horse is 12.00 m/s
The distance traveled by the horse is 18.00 meters
```

Q19. Write a C program to initialize your height and weight in cm. and kgs respectively demonstrating compile time initialization and convert them in feets and pounds respectively. **Note :- 1 cm = 0.393701inch , 1 Kg = 2.20462**

CODE-

```
#include <stdio.h>

int main() {
   // Initialize height in centimeters and weight in kilograms
   double height_cm = 190.0; // Change this to your height in cm
   double weight_kg = 70.0;  // Change this to your weight in kg

   // Constants for conversion
   const double CM_TO_INCH = 0.393701;
   const double KG_TO_LB = 2.20462;

   // Convert height to feet and weight to pounds
```

```
    double height_feet = height_cm * CM_TO_INCH / 12.0;
    double weight_lb = weight_kg * KG_TO_LB;

    // Print the results
    printf("Your height in feet: %.2lf feet\n", height_feet);
    printf("Your weight in pounds: %.2lf pounds\n", weight_lb);

    return 0;
}
```

OUTPUT -

```
Your height in feet: 6.23 feet
Your weight in pounds: 154.32 pounds
```

Q 20 . Code the variable declarations for each of following :

a) **A character variable named option.**
Ans- char option;

b) **An integer variable sum initialized to 0**
Ans- int sum = 0;

c) **A floating point variable, product, initialized to 1**
Ans- float product = 1.0;

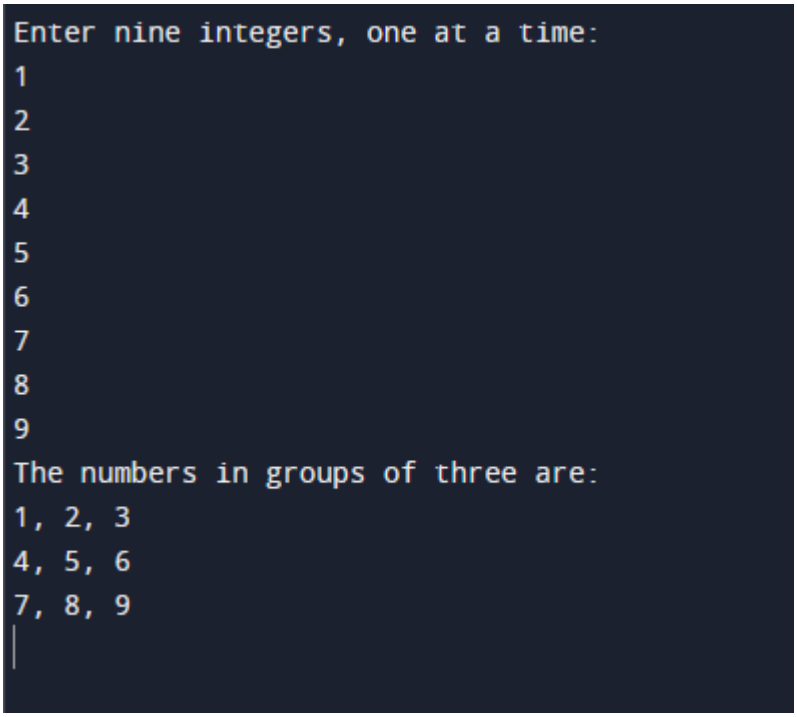
Q21. Write a C program that reads nine integers. Display these numbers by printing three numbers in a line separated by commas.

CODE-

```
#include <stdio.h>


int main() {
    int numbers[9]; // An array to store the nine integers


    // Read nine integers from the user
    printf("Enter nine integers, one at a time:\n");
    for (int i = 0; i < 9; i++) {
        scanf("%d", &numbers[i]);
```

```
    }

    // Display the numbers in groups of three separated by commas
    printf("The numbers in groups of three are:\n");
    for (int i = 0; i < 9; i++) {
        printf("%d", numbers[i]);

        // Print a comma after the first two numbers in each group
        if ((i + 1) % 3 != 0) {
            printf(", ");
        }

        // Print a newline character after the third number in each group
        if ((i + 1) % 3 == 0) {
            printf("\n");
        }
    }

    return 0;
}
```

OUTPUT -



Q22. What are header files and what are its uses in C programming?

Ans. Header files in C programming are files that contain declarations of functions, variables, and other constructs, which can be used in multiple source code files. They serve several important purposes in C programming:

- Organization
- Modularity
- Reusability
- Error checking
- Making it easier to manage and maintain complex programs.

Commonly used header files in C include:

- Stdio.h Contains declarations for input and output functions like `printf` and `scanf`.

Q23. What will be the output of following program?

```
#include<stdio.h>
int main()
{   int num=070;
printf("%d\t%o\t%x",num,num,num);
}
```

Ans. Output - 56 70 38

```
56  70  38
```

Q 24. What will be the output of following program?

```
#include <stdio.h>
void main()
{
int x = printf("GLA UNIVERSITY");
printf("%d", x);
 }
```

Ans. Output-

GLA UNIVERSITY14

Q25. What are library functions? List any four library functions.

Ans. Library functions are pre-written functions that are provided as part of the C standard library or other libraries. These functions perform common tasks, such as mathematical calculations, input/output operations, string manipulation, memory management, and more. Programmers can use these functions to save time and effort by leveraging pre-existing code rather than reinventing the wheel. Here are four commonly used library functions in C:

- Printf()
- Scanf()
- Strlen()
- Malloc()

Q26. What will be the output of following program?

```
#include <stdio.h>
void main()
{
  int x = printf("C is placement oriented Language") – printf(“Hi”);
  printf("%d %o %x", x,x,x);
}
```

Ans- C is placement oriented languageHi 30 36 1e

Q27. What is the meaning of following statement? printf(“%d”,scanf(“%d%d”,&a,&b));

Ans- scanf(“%d%d”,&a,&b): This scanf function is used to read two integer values from the user and store them in the variables a and b. It expects the user to input two integers separated by whitespace.

printf("%d", ...); This printf function is used to print the value returned by the scanf function. However, there is a potential issue with this statement. The problem is that the scanf function returns the number of successfully read items. In this case, if the user enters two integers successfully, scanf will return 2, and the printf function will print 2 as the output.

However, the printf format specifier %d expects an integer argument, but scanf retums an integer. Therefore, this code may not work as expected and could result in undefined behavior.

Q28. What will be the output of following program?

```
#include <stdio.h>
void main()
{
  printf(" \"C %% FOR %% PLACEMENT\"");
}
```

Ans. "C % FOR % PLACEMENT"

Q29. Suppose distance between GLA University and Delhi is m km (to be entered by user), by BUS you can reach Delhi in 4 hours. Develop a ‘C’ program to calculate speed of bus.

CODE-

```
#include <stdio.h>


int main() {
   double distance, time, speed;


   // Input distance in kilometers (to be entered by the user)
   printf("Enter the distance between GLA University and Delhi (in kilometers): ");
   scanf("%lf", &distance);


   // Input time in hours (constant value of 4 hours)
   time = 4.0;  // Assuming a constant travel time of 4 hours
```

```
    // Calculate the speed in kilometers per hour (km/h)
    speed = distance / time;

    // Display the calculated speed
    printf("The speed of the bus is %.2lf km/h\n", speed);

    return 0;
}
```

OUTPUT -

```
Enter the distance between GLA University and Delhi (in kilometers): 400
The speed of the bus is 100.00 km/h
```

Q30. In an exam Satyam got 50 marks, Suman got 70 marks and Shyam got 80 marks, Write a 'C' program to find average marks of these three participants.

CODE-

```
#include <stdio.h>

int main() {
    int satyam_marks = 50;
    int suman_marks = 70;
    int shyam_marks = 80;
    double average_marks = (satyam_marks + suman_marks + shyam_marks) / 3.0;

    printf("The average marks of Satyam, Suman, and Shyam is: %.2lf\n", average_marks);

    return 0;
}
```

OUTPUT -

```
The average marks of Satyam, Suman, and Shyam is: 66.67
```

Q31. One day, Mohan called Saurav and Sajal and gave some money to them, later he realized that money that was given to Saurav should be given to Sajal and vice-versa. Develop a 'C' program to help Mohan so that he can rectify his mistake.

CODE-

```
#include <stdio.h>


int main() {
   // Initial money distribution
   int saurav_money = 100;  // Money given to Saurav
   int sajal_money = 150;   // Money given to Sajal
   int temp;

   // Display the initial distribution
   printf("Initial distribution:\n");
   printf("Saurav's money: %d\n", saurav_money);
   printf("Sajal's money: %d\n", sajal_money);

   // Swap the money
   temp = saurav_money;
   saurav_money = sajal_money;
   sajal_money = temp;

   // Display the corrected distribution
   printf("\nAfter rectification:\n");
   printf("Saurav's money: %d\n", saurav_money);
   printf("Sajal's money: %d\n", sajal_money);

   return 0;
```

}

OUTPUT -

```
Initial distribution:
Saurav's money: 100
Sajal's money: 150
After rectification:
Saurav's money: 150
Sajal's money: 100
```

Q32. One day when I was going for a lunch, suddenly rain started, I was very hungry so started running with speed of 4km/h and it took 3 min to reach mess. Help me to develop a 'C' program to calculate distance travelled by me.

CODE-

```
#include <stdio.h>


int main() {
    double speed_kmph = 4.0; // Speed in kilometers per hour
    double time_hours = 0.05; // Time in hours (3 minutes is 0.05 hours)
    double distance_km;

    // Calculate the distance traveled
    distance_km = speed_kmph * time_hours;

    // Display the distance traveled
    printf("The distance you traveled is %.2lf kilometers\n", distance_km);

    return 0;
}
```

OUTPUT -

```
The distance you traveled is 0.20 kilometers
```

Q33. Can two or more escape sequences such as \n and \t be combined in a single line of program code?

Ans. Yes, we can combine multiple escape sequences in a single line of program code in C.

Q34. What are comments and how do you insert it in a C program?

Ans. Comments in a C program are human-readable annotations that are ignored by the compiler. They are used to add explanations, documentation, and notes within the code to make it more understandable for programmers.

In C, there are two common ways to insert comments:

1. **Single-Line Comments**: Single-line comments are used for brief comments that fit on one line. They start with // and continue until the end of the line.

Eg-

```
#include <stdio.h>


int main() {
   // This is a single-line comment
   printf("Hello, world!\n"); // Another single-line comment
   return 0;
}
```

2. **Multi-Line Comments**: Multi-line comments are used for longer comments or comments that span multiple lines. They start with /* and end with */. Everything between /* and */ is considered a comment.

Eg.-

```
 #include <stdio.h>
int main() {
   /*
   This is a multi-line comment.
   It can span multiple lines and is useful for detailed explanations.
```

```
   */
   printf("Hello, world!\n");
   return 0;
}
```

Q35. What is wrong in this statement? scanf(“%d”,number);

Ans. & operator before the variable name is not there in the code.

Q36. What will be the output?

```
#include <stdio.h>
      int main()
{
   if (sizeof(int) > -1)
      printf("Yes");
   else
      printf("No");
   return 0;
}
```

Ans. Output will be-

No

Q37. Point out which of the following variable names are invalid:

gross-salary INTEREST , salary of emp , avg. , thereisbookinmysoup

Ans. Invalid variables are:-

- gross-salary INTEREST
- salary of emp
- avg.

Q38. Tom works at an aquarium shop on Saturdays. One Saturday, when Tom gets to work, he is asked to clean a 175-gallon reef tank. His first job is to drain the tank. He puts a hose into the tank and starts a siphon. Tom wonders if the tank will finish draining before he leaves work. He measures the amount of water that is draining out and finds that 12.5 gallons drain out in 30 minutes. So, he figures that the rate is 25 gallons per hour. Develop a ‘C’ program to help Tom to calculate time required to completely clean tank.

CODE-

```
#include <stdio.h>


int main() {
    double total_volume = 175.0; // Total volume of the tank in gallons
    double drain_rate = 25.0;   // Drain rate in gallons per hour
    double time_required;

    // Calculate the time required to completely drain the tank
    time_required = total_volume / drain_rate;

    // Display the calculated time in hours
    printf("Time required to completely clean the tank: %.2lf hours\n", time_required);

    return 0;
}
```

OUTPUT -

```
Time required to completely clean the tank: 7.00 hours
```

Q39. The percent y (in decimal form) of battery power remaining x hours after you turn on a laptop computer is y = −0.2 x + 1. Develop a 'C' program to calculate after how many hours the battery power is at 75%?

CODE-

```
#include <stdio.h>


int main() {
    double battery_power = 0.75;  // 75% in decimal form
    double x; // Number of hours

    // Solve for x using the equation: y = -0.2x + 1
```

```
    x = (1 - battery_power) / 0.2;


    // Display the calculated number of hours
    printf("The battery power is at 75%% after %.2lf hours\n", x);


    return 0;
}
```

OUTPUT-

```
The battery power is at 75% after 1.25 hours
```

Q40.Which of the following is used to convert the high level language in machine language in a single go?

a. Compiler **b.Interpreter**

c. Linker **d.Assembler**

Ans. Compiler

Q 41. What is the format specifier for an Octal Number?

a.%0 **b.%d**

c. %o **d. %e**

Ans. %o

Q 42. Which format specifier is used to print the exponent value upto 2 decimal places.

a. %e **b.%.2f** **c. %f** **d.%.2e**

b. Ans. %.2e

Q 43. Which of the following is not a basic data type?

a. char

b. array

c. float

d. Int

Ans. array

Q 44. What is the output of following code?

```
#include<stdio.h>
void main()
{
  int x=0;
  x= printf("\"hello\b\"");
  printf("%d",x);
}
```

a. hello7 b. "hello"7 c. "hell"8 d. hell8

Ans. "hell"8

Q 45. What is the output of following code?

```
#include<stdio.h>
void main()
{
  int b,c=5 ;
  int("%d , %d", b,c);
}
```

a. 5, 5 b. 5, 5.000000

c. Garbage, 5.000000 d. Garbage, 5

Ans. Garbage, 5

Q46. Which of the following is an identifier?

a. &fact b. Basic_pay c. enum d. 1sum

Ans. Basic_pay

Q 47. What is the output of the following program?

```
#include<stdio.h>
void main()
{
   char x, a='c';
   x=printf("%c",a);
```

printf("%d",x);

}

a. c1 **b. cgarbage**

c. 1 **c. c**

Ans. c1

Q48. Perform the following conversion from Decimal to other number as directed-

Ans-

a. $(365.55)_{10} = (?)_2 = 101101101.10001100110011001101$

b. $(453.65)_{10} = (?)_8 = 705.51463$

c. $(5164.12)_{10} = (?)_{16} = 142C.1EB851$

d. $(23.65)_{10} = (?)_5 = 43.230$

e. $(772)_{10} = (?)_7 = 2152$

Q49. Covert the following numbers to decimal number system-

a. $\mathbf{(325.54)_6\ (?)_{10}} = \mathbf{(?)_{10}} =$ 125.9444

b. $\mathbf{(1001010110101.1110101)_2} = \mathbf{(?)_{10}} =$ 104789.9140625

c. $\mathbf{(742.72)_8 = (?)_{10}} =$ 10482.90625

d. $\mathbf{(AC94.C5)_{16} = (?)_{10}} =$ 44180.76953125

Q50. Perform the following conversion from Hexadecimal to other number as directed-

$\mathbf{(DB56.CD4)_{16} = (?)_2,\ \ (?)_8,\ \ (?)_4}$

Ans. $(1101101101010110.1100110101)_2$

$(31231112.30311)_4$

$(155526.6324)_8$

Q51. Perform the following conversion from octal to other number as directed-

$\mathbf{(473.42)_8 = (?)_2,\ \ (?)_{10},\ \ (?)_{16},\ \ (?)_5}$

Ans. $(100111011.10001)_2$

$(315.53125)_{10},\ (13B.88)_{16},\ (2230.23120034)_5$

Q52. Find the value of A?

a) $(23)_{10} = (17)_A$

b) $(21)_{16} = (41)_A$

c) $(32)_8 = (101)_A$

Ans.

a) A = 16

b) A = 8

c) **A= 5**

Q53: What will be the output of following program? Assume integer is of 2 bytes

```
void main(){
int  a=32770;
printf("%d",a);
}
```

Ans. -32766

Q54:

```
#include <stdio.h>
 int main()
{
 float c = 5.0;
 printf ("Temperature in Fahrenheit is %.2f", (9/5)*c + 32);
 return 0;
}
```

Ans. Temperature in Fahrenheit is 37.00