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GLA UNIVERSITY MATHURA

Computer Programming

Assignment

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.

```c
#include <stdio.h>

int main()
{

    float price, tax_rate, final_price;
    printf("Enter the price of the product: ");
    scanf("%f", &price);
    printf("Enter the tax rate (in percentage): ");
    scanf("%f", &tax_rate);
    final_price = price + (price * tax_rate / 100);
    printf("The final price of the product is: %.2f\n", final_price);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingn
Enter the price of the product: 50
Enter the tax rate (in percentage): 12
The final price of the product is: 56.00

--------------------------------
Process exited after 6.307 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

Hours that he or she has worked.

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```c
#include<stdio.h>
int main ()
{
int a ,b,total ;
printf("enter weeklywage ");
scanf("%d",&a);

printf("enter work hour");
scanf("%d",&b);
if (b<=30)
{
    total=a*b;
    printf("total amt:%d",total);

}
else {

    total=a*b+(b-30)*a;
    printf("total amt = %d",total
}
```

```
C:\Users\hp\Desktop\assingm
enter weeklywage 20
enter work hour32
total amt = 680
--------------------------------
Process exited after 4.435 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.

```c
#include <stdio.h>

int main()
{
    // Declare variables
    float wallet = 500.0;  // Mr. X's initial currency
    float applePricePerKg = 50.0;
    float mangoPricePerKg = 35.0;
    float potatoPricePerKg = 10.0;
    float tomatoPricePerKg = 15.0;

    float appleWeight = 2.0;
    float mangoWeight = 1.5;
    float potatoWeight = 2.5;
    float tomatoWeight = 1.0;

    // Calculate the total cost of each item
    float appleCost = appleWeight * applePricePerKg;
    float mangoCost = mangoWeight * mangoPricePerKg;
    float potatoCost = potatoWeight * potatoPricePerKg;
    float tomatoCost = tomatoWeight * tomatoPricePerKg;

    // Calculate the total cost of all items
    float totalCost = appleCost + mangoCost + potatoCost + tomatoCost;

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

    // Display the amount to be returned
    printf("Amount to be returned to Mr. X: Rs %.2f\n", amountToReturn);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Amount to be returned to Mr. X: Rs 307.50

--------------------------------
Process exited after 0.6329 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main()
{
  printf("My name: Pravendra Thakur\n");
  printf("Mobile no:xxxxxxxxxx\n");
  printf("Date of Birth:01/01/2006");

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
My name: Pravendra Thakur
Mobile no:xxxxxxxxxx
Date of Birth:01/01/2006
--------------------------------
Process exited after 0.7707 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main() {

    int integerNum;
    char character;
    float floatNum;
    printf("Enter an integer: ");
    scanf("%d", &integerNum);
    printf("Enter a character: ");
    scanf(" %c", &character);
    printf("Enter a float value: ");
    scanf("%f", &floatNum);
    printf("Integer: %d\n", integerNum);
    printf("Character: %c\n", character);
    printf("Float: %.2f\n", floatNum);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter an integer: 12
Enter a character: D
Enter a float value: 12.3
Integer: 12
Character: D
Float: 12.30

--------------------------------
Process exited after 22.07 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

```c
#include <stdio.h>

int main() {

    float cost = 172.53;
    printf("The sales total is : $ %.2f\n", cost);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
The sales total is : $ 172.53

--------------------------------
Process exited after 0.9747 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 program which could help Raju in doing this.

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```c

#include <stdio.h>

int main() {
    int rajuApples = 6;
    int raghuApples = 6;
    int sheenuApples = 6;
    int akashApples = 6;
    rajuApples += raghuApples;
    rajuApples += sheenuApples;
    rajuApples += akashApples;
    printf("Raju has a total of %d apples.\n", rajuApples);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Raju has a total of 24 apples.

--------------------------------
Process exited after 1.072 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main() {
    double floatValue = 12345.6789;
    printf("Value in exponential format: %.2e\n", floatValue);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Value in exponential format: 1.23e+004

--------------------------------
Process exited after 1.993 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main() {
    long long int mobileNumber;
    printf("Enter your 10-digit mobile number: ");
    scanf("%lld", &mobileNumber);
    if (mobileNumber >= 1000000000LL && mobileNumber <= 9999999999LL)
    {
        printf("Your mobile number is: %lld\n", mobileNumber);
    } else
    {
        printf("Invalid input. Please enter a 10-digit mobile number.\n");
    }

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter your 10-digit mobile number: 2514368793
Your mobile number is: 2514368793

--------------------------------
Process exited after 14 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main() {
    int initialPopulation = 30000;
    float increasePercentageYear1 = 20.0; // 20% increase
    float increasePercentageYear2 = 30.0; // 30% increase

    // Calculate the population after the first year
    float populationYear1 = initialPopulation + (initialPopulation * (increasePercentageYear1 / 100));

    // Calculate the population after the second year
    float populationYear2 = populationYear1 + (populationYear1 * (increasePercentageYear2 / 100));

    // Display the population after two years
    printf("Population after two years: %d\n", (int)populationYear2);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingn
Population after two years: 46800

--------------------------------
Process exited after 0.5819 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main() {
    char character;

    // Input a character from the user
    printf("Enter a character: ");
    scanf("%c", &character);
    printf("ASCII value of %c is %d\n", character, (int)character);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingn
Enter a character: A
ASCII value of A is 65

--------------------------------
Process exited after 3.401 seconds with return value 0
Press any key to continue . . .
```

Q12. Write a 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.

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```c
#include <stdio.h>

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

    // Input the basic pay from the user
    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 total salary (basic pay + HRA + TA)
    salary = basicPay + hra + ta;
    printf("Salary: %.2f\n", salary);
    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter the basic pay: 50000
Salary: 67500.00

--------------------------------
Process exited after 3.524 seconds with return value 0
Press any key to continue . . .
```

```
Compile Log  Debug
Compilation results...
--------
- Errors: 0
- Warnings: 0
```

Q13. Write a 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.

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

int main() {
    double xp, yp, xq, yq;
    double 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);
    if (xp == xq) {
        printf("The line is vertical, and the slope is undefined.\n");
    } else {
        slope = (yq - yp) / (xq - xp);
        angle = atan(slope);
        angle = angle * 180 / M_PI;
        printf("The slope of the line is: %.2lf\n", slope);
        printf("The angle of inclination is: %.2lf degrees\n", angle);
    }

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter the coordinates of point P (xp yp): 2
5
Enter the coordinates of point Q (xq yq): 3
6
The slope of the line is: 1.00
The angle of inclination is: 45.00 degrees

--------------------------------
Process exited after 7.623 seconds with return value 0
Press any key to continue . . .
```

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:

$$\text{SPI} = \frac{\sum_{i=1}^{k} c_i g_i}{\sum_{i=1}^{k} c_i}$$

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.

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```c
#include <stdio.h>

int main() {
    // Declare variables for grade points and credits
    float g1, g2, g3, g4, g5;
    float c1, c2, c3, c4, c5;

    // Input grade points and credits for 5 courses
    printf("Enter the grade points and credits for 5 courses:\n");
    printf("Course 1: ");
    scanf("%f %f", &g1, &c1);
    printf("Course 2: ");
    scanf("%f %f", &g2, &c2);
    printf("Course 3: ");
    scanf("%f %f", &g3, &c3);
    printf("Course 4: ");
    scanf("%f %f", &g4, &c4);
    printf("Course 5: ");
    scanf("%f %f", &g5, &c5);

    // Calculate SPI
    float numerator = (c1 * g1 + c2 * g2 + c3 * g3 + c4 * g4 + c5 * g5);
    float denominator = (c1 + c2 + c3 + c4 + c5);
    float spi = numerator / denominator;

    // Display the SPI
    printf("SPI for k = 5 is: %.2f\n", spi);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter the grade points and credits for 5 courses:
Course 1: 25
75
Course 2: 45
65
Course 3: 38
91
Course 4: 74
82
Course 5: 65
24
SPI for k = 5 is: 47.14

--------------------------------
Process exited after 22.52 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

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

    // Input the wavelength (?) and speed (c) from the user
    printf("Enter the wavelength (?) in meters: ");
    scanf("%lf", &wavelength);

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

    // Calculate the frequency (f) using the formula c = ? * f
    frequency = speed / wavelength;

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

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter the wavelength (?) in meters: 12
Enter the speed (c) in meters per second: 25
The frequency (f) of the wave is: 2.08 Hz

--------------------------------
Process exited after 14.93 seconds with return value 0
Press any key to continue . . .
```

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]

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

int main() {
    // Declare variables
    double initialVelocity = 30.0; // Initial velocity in m/s
    double acceleration = 5.0;     // Acceleration in m/s^2
    double distance = 70.0;        // Distance traveled in meters
    double finalVelocity;

    // Calculate the final velocity using the kinematic equation
    finalVelocity = sqrt(pow(initialVelocity, 2) + 2 * acceleration * distance);

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

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
The final velocity of the car is 40.00 m/s

--------------------------------
Process exited after 1.377 seconds with return value 0
Press any key to continue . . .
```

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]

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```c
#include <stdio.h>

int main() {
    // Given values
    double initialVelocity = 0.0; // Initial velocity in m/s (horse starts from rest)
    double acceleration = 4.0;    // Acceleration in m/s^2
    double time = 3.0;            // Time in seconds

    // (a) Calculate the final velocity using v = u + at
    double finalVelocity = initialVelocity + acceleration * time;

    // (b) Calculate the distance traveled using s = ut + 1/2 * at^2
    double distance = initialVelocity * time + 0.5 * acceleration * time * time;

    // Display the results
    printf("(a) The final velocity of the horse is %.2lf m/s\n", finalVelocity);
    printf("(b) The horse has traveled a distance of %.2lf meters\n", distance);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
(a) The final velocity of the horse is 12.00 m/s
(b) The horse has traveled a distance of 18.00 meters

--------------------------------
Process exited after 2.141 seconds with return value 0
Press any key to continue . . .
```

Compile Log | Debug

```
Compilation results...
```

Q 18. Write a program to find the sum of your four last digit of your university roll number .

```c
#include <stdio.h>

int main() {
    // Replace '12345678' with your actual university roll number
    char rollNumber[] = "12345678";

    int sum = 0;
    int length = sizeof(rollNumber) - 1; // Exclude the null terminator

    if (length >= 4) {
        for (int i = length - 4; i < length; i++) {
            if (rollNumber[i] >= '0' && rollNumber[i] <= '9') {
                sum += (rollNumber[i] - '0');
            }
        }

        printf("Sum of the last four digits of your university roll number: %d\n", sum);
    } else {
        printf("Your university roll number does not have at least four digits.\n");
    }

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Sum of the last four digits of your university roll number: 26

--------------------------------
Process exited after 0.8849 seconds with return value 0
Press any key to continue . . .
```

Compile Log | Debug

```
Compilation results...
--------
- Errors: 0
```

Q19. Write a 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**

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```c
#include <stdio.h>

// Constants for conversion factors
#define CM_TO_INCH 0.393701
#define KG_TO_POUND 2.20462

int main() {
    // Compile-time initialization of height and weight
    double heightInCm = 175.0; // Replace with your actual height in centimeters
    double weightInKg = 70.0;  // Replace with your actual weight in kilograms

    // Convert height from centimeters to inches
    double heightInInches = heightInCm * CM_TO_INCH;

    // Convert weight from kilograms to pounds
    double weightInPounds = weightInKg * KG_TO_POUND;

    // Display the converted values
    printf("Height: %.2f cm = %.2f inches\n", heightInCm, heightInInches);
    printf("Weight: %.2f kg = %.2f pounds\n", weightInKg, weightInPounds);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Height: 175.00 cm = 68.90 inches
Weight: 70.00 kg = 154.32 pounds

--------------------------------
Process exited after 1.135 seconds with return value 0
Press any key to continue . . .
```

Compile Log | Debug

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
```

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

a) A character variable named option.=`char option;`
b) An integer variable sum initialized to 0=`int sum = 0;`
c) A floating point variable, product, initialized to 1=`float product = 1.0;`

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

Untitled1.cpp | mama.cpp

```c
#include <stdio.h>

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

    // Input nine integers
    printf("Enter nine integers:\n");
    for (int i = 0; i < 9; i++) {
        scanf("%d", &numbers[i]);
    }

    // Display the numbers in groups of three, separated by commas
    printf("Numbers in groups of three:\n");
    for (int i = 0; i < 9; i++) {
        printf("%d", numbers[i]);
        if ((i + 1) % 3 == 0) {
            printf("\n"); // Print a newline after every third number
        } else {
            printf(", "); // Print a comma and space between numbers
        }
    }

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Enter nine integers:
14
25
36
63
52
41
14
15
14
Numbers in groups of three:
14, 25, 36
63, 52, 41
14, 15, 14

--------------------------------
Process exited after 12.5 seconds with return value 0
Press any key to continue . . .
```

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

Ans. Common C header files include `<stdio.h>` for input and output operations, `<stdlib.h>` for memory allocation and other utility functions, `<math.h>` for mathematical functions, and many more.

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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. `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. `GLA UNIVERSITY13`

Q25. What are library functions? List any four library functions.
Ans. Library functions are pre-defined functions provided by the C standard library, like printf(), scanf(), strcat(), and sqrt().

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. `32 40 20`

Q27. What is the meaning of following statement?

printf(“%d”,scanf(“%d%d”,&a,&b));

Ans. . This statement reads two integers and returns the count of successfully read items. So, it prints "2" if both inputs are integers.

Q28. What will be the output of following program?

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

Ans. `"C % FOR % PLACEMENT"`

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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.

```c
#include <stdio.h>

int main() {
    double distance; // Distance in kilometers
    double time;     // Time in hours
    double speed;    // Speed in km/hour

    // Ask the user to enter the distance
    printf("Enter the distance between GLA University and Delhi (in km): ");
    scanf("%lf", &distance);

    // Ask the user to enter the time taken to reach Delhi (in hours)
    printf("Enter the time taken to reach Delhi (in hours): ");
    scanf("%lf", &time);

    // Calculate the speed
    speed = distance / time;

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

    return 0;
}
```

```
Compile Log  Debug  Find Results  Close
ompilation results...
-------
```

```
C:\Users\hp\Desktop\assingm
Enter the distance between GLA University and Delhi (in km): 100
Enter the time taken to reach Delhi (in hours): 1
The speed of the bus is 100.00 km/hour

--------------------------------
Process exited after 12.84 seconds with return value 0
Press any key to continue . . .
```

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.

```c
#include <stdio.h>

int main() {
    // Marks obtained by Satyam, Suman, and Shyam
    int satyamMarks = 50;
    int sumanMarks = 70;
    int shyamMarks = 80;

    // Calculate the average marks
    float averageMarks = (satyamMarks + sumanMarks + shyamMarks) / 3.0;

    // Display the average marks
    printf("Average marks of Satyam, Suman, and Shyam: %.2f\n", averageMarks);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Average marks of Satyam, Suman, and Shyam: 66.67

--------------------------------
Process exited after 0.8263 seconds with return value 0
Press any key to continue . . .
```

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.

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```c
#include <stdio.h>

int main() {
    int sauravMoney, sajalMoney, temp;

    // Input the initial amounts given to Saurav and Sajal
    printf("Enter the amount of money given to Saurav: ");
    scanf("%d", &sauravMoney);

    printf("Enter the amount of money given to Sajal: ");
    scanf("%d", &sajalMoney);

    // Swapping the money
    temp = sauravMoney;
    sauravMoney = sajalMoney;
    sajalMoney = temp;

    // Display the corrected amounts
    printf("After rectifying the mistake:\n");
    printf("Amount of money given to Saurav: %d\n", sauravMoney);
    printf("Amount of money given to Sajal: %d\n", sajalMoney);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingn
Enter the amount of money given to Saurav: 500
Enter the amount of money given to Sajal: 420
After rectifying the mistake:
Amount of money given to Saurav: 420
Amount of money given to Sajal: 500

--------------------------------
Process exited after 12.84 seconds with return value 0
Press any key to continue . . .
```

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.

```c
#include <stdio.h>

int main() {
    // Speed in km/h
    double speedKmph = 4.0;

    // Convert speed to km/min
    double speedKmPerMin = speedKmph / 60.0;

    // Time in minutes
    double timeMin = 3.0;

    // Calculate the distance in kilometers
    double distanceKm = speedKmPerMin * timeMin;

    // Display the calculated distance
    printf("Distance traveled: %.2lf km\n", distanceKm);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingn
Distance traveled: 0.20 km

--------------------------------
Process exited after 0.9278 seconds with return value 0
Press any key to continue . . .
```

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

```c
#include <stdio.h>

int main() {
  printf("Hello,\n\tWorld!");
    return 0;
}
```

```
C:\Users\hp\Desktop\assingn
Hello,
        World!
--------------------------------
Process exited after 0.6979 seconds with return value 0
Press any key to continue . . .
```

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

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Ans. Comments are notes in your code, not read by the compiler. Use /* for multi-line or // for single-line comments.

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

Ans. Comments are notes in your code, not read by the compiler. Use /* for multi-line or // for single-line comments.

Q36. What will be the output?

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

Ans.Yes

Q37. Point out which of the following variable names are invalid:
gross-salary INTEREST , salary of emp , avg. , thereisbookinmysoup

Ans. the invalid variable name is "avg." Variable names in C cannot contain a period (.) character. Therefore, "avg." is not a valid variable name.

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.

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```c
#include <stdio.h>

int main() {
    // Constants
    const double totalGallons = 175.0; // Total gallons in the tank
    const double rateGallonsPerHour = 25.0; // Rate of drainage in gallons per hour

    // Calculate the time required in hours
    double timeRequiredHours = totalGallons / rateGallonsPerHour;

    // Display the time required
    printf("Time required to completely clean the tank: %.2f hours\n", timeRequiredHours);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
Time required to completely clean the tank: 7.00 hours

--------------------------------
Process exited after 0.9275 seconds with return value 0
Press any key to continue . . .
```

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%?

```c
#include <stdio.h>

int main() {
    // Target battery percentage
    double targetPercentage = 0.75;

    // Calculate the hours using the given formula y = -0.2x + 1
    double hours = (1 - targetPercentage) / -0.2;

    // Display the result
    printf("The battery power is at %.2lf%% after %.2lf hours.\n", targetPercentage * 100, hours);

    return 0;
}
```

```
C:\Users\hp\Desktop\assingm
The battery power is at 75.00% after -1.25 hours.

--------------------------------
Process exited after 1.03 seconds with return value 0
Press any key to continue . . .
```

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
Ans. %.2e

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

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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. hello7

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

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

a) $(365.55)_{10} = (?)_2$
b) $(453.65)_{10} = (?)_8$
c) $(5164.12)_{10} = (?)_{16}$
d) $(23.65)_{10} = (?)_5$
e) $(772)_{10} = (?)_7$

Ans. $(365.55)_{10} = (101101101.10001100110011001100)_2$
$(453.65)_{10} = (705.50231481481481481481)_8$
$(5164.12)_{10} = (1434.1E147AE147AE147AE14)_{16}$
$(23.65)_{10} = (43.322)_5$
$(772)_{10} = (2211)_7$

Q49. Covert the following numbers to decimal number system-

a) $(325.54)_6 = (?)_{10}$
b) $(1001010110101.1110101)_2 = (?)_{10}$
c) $(742.72)_8 = (?)_{10}$
d) $(AC94.C5)_{16} = (?)_{10}$

Ans. $(325.54)_6 = (209.66667)_{10}$
$(1001010110101.1110101)_2 = (4745.82031)_{20}$
$(742.72)_8 = (482.90625)_{20}$
$(AC94.C5)_{16} = (44180.76953)_{20}$

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

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

Ans. $(DB56.CD4)_{16} = (1101101101010110.110011010100)_2$, $(333126.63120)_8$, $(31231220.31210)_4$

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

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

Ans. $(473.42)_8 = (100111011.1001)_2$, $(315.53125)_{10}$, $(13B.88)_{16}$, $(2330.14)_5$

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Q52. Find the value of A?

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

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

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

Ans. For $(23)_{10} = (17)_A$, A = 8

For $(21)_{16} = (41)_A$, A = 5

For $(32)_8 = (101)_A$, A = 2

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

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

Ans. 32770

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

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