**C Programming Assignment**

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Section:- AU2

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.

#include<stdio.h>

#include<conio.h>

int main()

{

    float originalPrice,taxRate,totalPrice;

    printf("Enter the original price of the product:");

    scanf("%f",&originalPrice);

    printf("Enter the sales tax rate (in percentage):");

    scanf("%f",&taxRate);

    totalPrice = originalPrice + (originalPrice \* taxRate / 100);

    printf("The total price after adding %.2f%% tax is:%.2f\n",        taxRate,totalPrice);

    return 0;

}

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.

#include<stdio.h>

#include<conio.h>

int main()

{

    double wagesPerHour,hoursWorked,weeklyWages;

    printf("Enter wages per hour: ");

    scanf("%lf",&wagesPerHour);

    printf("Enter hours worked: ");

    scanf("%lf",&hoursWorked);

    if(hoursWorked<=30)

    {

        weeklyWages=wagesPerHour\*hoursWorked;

    }

else

    {

        double regularWages=30\*wagesPerHour;                                                      double extraHours=hoursWorked-30;

        double extraWages=extraHours\*(2\*wagesPerHour);                     weeklyWages=regularWages+extraWages;

    }

    printf("Weekly wages: $%.2lf\n",weeklyWages);

    return 0;

}

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. #include<stdio.h>

#include<conio.h>

int main()

{

double totalCost,amountPaid,amountReturned;

    double applePrice=50.0;

    double mangoPrice=35.0;

    double potatoPrice=10.0;

    double tomatoPrice=15.0;

    double appleQty=2.0;

    double mangoQty=1.5;

    double potatoQty=2.5;

    double tomatoQty=1.0;

    totalCost=(applePrice\*appleQty)+(mangoPrice\*mangoQty)+(potatoPrice \*potatoQty)+(tomatoPrice\*tomatoQty);

    amountPaid=500.0;

    amountReturned=amountPaid-totalCost;

    if(amountReturned>=0)

  {

        printf("Amount to be returned: Rs. %.2lf\n",amountReturned);

    }

else

{

        printf("Insufficient funds. Additional Rs. %.2lf required.\n",amountReturned);

    }

    return 0;

}

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

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

printf("Name: Your Name\n");

    printf("Date of Birth: Your Date of Birth\n");

    printf("Mobile Number: Your Mobile Number\n");

    return 0;

}

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.

#include<stdio.h>

#include<conio.h>

int main()

{

int integerVal;

    char characterVal;

    float floatVal;

    printf("Enter an integer: ");

    scanf("%d",&integerVal);

    printf("Enter a character: ");

    scanf("%c",&characterVal);

    printf("Enter a float value: ");

    scanf("%f",&floatVal);

    printf("Integer: %d\n",integerVal);

    printf("Character: %c\n",characterVal);

    printf("Float: %.2f\n",floatVal);

    return 0;

}

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.

#include <stdio.h>

int main()

{

 float cost;

 cost=172.53;

 printf("The sales total is : $%.2f",cost);

 return 0;

}

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.

#include <stdio.h>

int main() {

 double raju\_apples = 6.5; // Raju got 6.5 apples from each person

 int num\_people = 3; // Raju received apples from 3 people

 double total\_apples = raju\_apples \* num\_people;

printf("Raju has %.1f apples in total without adding them.\n", total\_apples);

 return 0;

}

Q8.Write a program that prints the floating point value in

exponential format correct to two decimal places.

#include <stdio.h>

int main() {

 double number; // Replace this with your desired floating-point value

scanf(“%lf”,&number);

 printf("The value in exponential format is: %.2e\n", number);

 return 0;

}

Q9.Write a program to input and print your mobile number (i.e.

of 10 digits).

#include<stdio.h>

Int main()

{

long number;

printf(“Please enter your 10 digit mobile no.”);

scanf(“%ld”,&number);

printf(“%ld”,number);

return 0;

}

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)

#include<stdio.h>

int main()

{

float first,second;

int initial=30000;

first=initial+(0.2\*initial);

second=initial+(0.3\*initial);

float final=first+second;

printf(“%f”,final);

return 0;}

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

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

     char ch;    
    printf("Enter a character: ");   
    scanf("%c",&ch);   
    printf("ASCII value of %c is %d\n",ch,ch);   
    return 0;   
} 

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.

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

    double basicPay, HRA, TA, salary;   
    printf("Enter basic pay: ");   
    scanf("%lf",&basicPay);   
    HRA=0.15\*basicPay;   
    TA=0.20\*basicPay;   
    salary=basicPay+HRA+TA;   
    printf("Basic Pay: %.2lf\n",basicPay);   
    printf("HRA: %.2lf\n",HRA);   
    printf("TA: %.2lf\n",TA);   
    printf("Total Salary: %.2lf\n",salary);   
    return 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.

   
#include<stdio.h>

#include<conio.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);                         
    slope=(yq-yp)/(xq-xp);   
    angle=atan(slope)\*180/M\_PI;   
    printf("Slope of the line: %.2lf\n",slope);   
    printf("Angle of inclination (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:

SPI=i=1kcigii=1kci

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.

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{   
int k=5;

double spi=0.0;

int i;   
double gradePoints[k];   
double credits[k];   
for(i=0;i<k;i++)

{   
        printf("Enter grade points for course %d: ",i+1);   
        scanf("%lf",&gradePoints[i]);   
        printf("Enter credits for course %d: ",i+1);   
        scanf("%lf",&credits[i]);   
    }   
    for (i=0;i<k;i++)

{   
        spi+=(gradePoints[i]\*credits[i]);   
    }   
    spi/=k;   
    printf("SPI:%.2lf\n",spi);   
    return 0;   
} 

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

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{   
    double wavelength, speed, frequency;

    printf("Enter the wavelength (in meters): ");   
    scanf("%lf",&wavelength);   
    printf("Enter the speed (in meters per second): ");   
    scanf("%lf",&speed);   
    frequency=speed/wavelength;   
    printf("Frequency=%.2lf Hz\n",frequency);   
    return 0;   
} 

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].

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{   
  double initialvelocity=30.0;

  double acceleration=5.0;

  double distance=70.0;

 double finalvelocity;   
finalVelocity=sqrt(initialvelocity\*initialvelocity+2\*acceleration\*distance);   
printf("Final velocity of the car: %.2lf m/s\n",finalvelocity);   
return 0;   
} 

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 ].

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{   
    double initialvelocity=0.0;

    double acceleration=4.0;

    double time=3.0;

    double finalvelocity,distance;   
    finalVelocity=initialvelocity+(acceleration\*time);   
    distance=(initialvelocity\*time)+(0.5\*acceleration\*time\*time);   
    printf("Final velocity of the horse: %.2lf m/s\n",finalVelocity);   
    printf("Distance traveled by the horse: %.2lf meters\n",distance);   
    return 0;   
} 

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

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

  long n;

printf("please enter your university roll no.");

scanf("%ld",n);

int r=0;

int rem=0;

int c=0;

whie(n>0)

{

r=n%10;

rem=r+rem\*10;

n=n/10;

c++;

printf(“%d”,n);

if(c<=4)

{break;

}

return 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.

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{   
double heightcm=175.0;

double weightkg=70.0;     
const double CM\_TO\_INCH=0.393701;   
const double KG\_TO\_POUNDS=2.20462;   
double heightfeet=heightcm\*CM\_TO\_INCH/12.0;   
double weightpounds=weightkg\*KG\_TO\_POUNDS;   
printf("Height in feet: %.2lf\n",heightfeet);   
printf("Weight in pounds: %.2lf\n",weightpounds);   
return 0;   
} 

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

a) A character variable named option.

b) An integer variable sum initialized to 0

c) A floating point variable, product, initialized to 1

a = char option;

b = int sum=0;

c = 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.

#include <stdio.h>

int main() {

 int numbers[9];

 // Read nine integers from the user

 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("The numbers in groups of three separated by commas are:\n");

for (int i = 0; i < 9; i++) {

 printf("%d", numbers[i]);

 if ((i + 1) % 3 == 0) {

 printf("\n"); // Start a new line after every third number

 } else {

 printf(", "); // Add a comma and space for the other numbers

 }

 }

 return 0;

}

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 macros, as well as necessary include statements.

These files typically have a ".h" extension and are used to separate the

interface (declarations) from the implementation (actual code) in C

programs. Header files serve several important purposes in C

programming.

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);

}

 Output:- 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);

 }

Output:- The program prints the value of x using printf("%d", x);, which will

display 14 as the output.

“GLA UNIVERSITY14”

Q25. What are library functions? List any four library

functions.

Ans. Library functions are pre-written functions provided by a programming

language that perform common operations. These functions are stored in libraries and can be invoked by the programmer without having to rewrite the code each

time a certain operation is needed. Using library functions makes programming

more efficient and often results in fewer errors since the functions have typically

been tested and optimized by many users.

(1) Printf() :- used to print statements and values in output

(2) trlen(): Found in the string.h header, this function returns the length of a

given string.

(3) scanf() :- used to take input from user through different format specifier

depending upon datatypes.

(4) sqrt() : Defined in the math.h header, this function returns the square

root of a given number.

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);

}

 The required output is :

%d prints the value of x in decimal format, which is 30.

• %o prints the value of x in octal format, which is 36 (30 in octal).

• %x prints the value of x in lowercase hexadecimal format, which is 1e (30 in

hexadecimal).

So, the output of the program will be:

 30 36 1e

Q27. What is the meaning of following statement?

printf(“%d”,scanf(“%d%d”,&a,&b));

Ans. In this type of question firstly we will get values of a and b from user

through scanf() and then print the value of a only because in printf there is

only one %d which will print only a not both a and b.

Q28. What will be the output of following program?

#include <stdio.h>

void main()

{

 printf(" \"C %% FOR %% PLACEMENT\"");

}

Ans. "C %% FOR %% PLACEMENT" is the string to be printed.

• %% is an escape sequence that represents a single percent sign %.

• \" is an escape sequence that represents a double quote ".

 So, when this program is executed, it will print the following output:

 -: THE REQUIRED OUTPUT IS :-

 "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.

#include<stdio.h>

int main()

{

Float m; printf(“Please enter the no. of kms between GLA and Delhi”);

Scanf(“%f”,&m);

Float speed=m/4;

Printf(“ the speed of bus is %f km/h”,speed);

Return 0;

}

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.

#include<stdio.h>

#include<conio.h>

int main()

{

int a,b,c; float avg;

scanf("%d%d%d",&a,&b,&c);

{

avg=(a+b+c)/3;

printf("your average is %.2f",avg);

return 0;

}

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.

#include<stdio.h>

#include<conio.h>

int main()

{

int a,b;

printf("please enter two no. you want to swap");

scanf("%d%d",&a,&b);

printf("\n no.s before swapping are %d and %d",a,b);

a=a+b;

b=a-b;

a=a-b;

printf("\n no.s after swapping are %d and %d",a,b);

return 0;

}

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.

#include<stdio.h>

Int main()

{

int speed=4; int time=(4\*60);

int dist=speed\*time;

printf(“The Total Distance is %d meters.”,dist);

return 0;

}

Q33. Can two or more escape sequences such as \n and \t be

combined in a single line of program code?

In C programming, you can combine multiple escape sequences in a single line of

program code.

-: For example :-

you can combine the newline (\n) and tab (\t) escape sequences in a single line of

code like this:

 printf("This is a line with a newline character (\n) and a tab character (\t).");

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

program?

Ans. In C programming, comments are textual annotations or explanations within

the source code that are ignored by the compiler. Comments are used to provide

information about the code to programmers

Single-line comments: These are used for brief comments on a single line of code.

In C, single-line comments are preceded by //.

Multi-line comments: These are used for longer comments or comments that span

multiple lines. In C, multi-line comments are enclosed within /\* and \*/.

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

Ans. In order to get an input from user…you have to insert Ampersand(&) before

‘number’ variable and it will give you an error if you compile this line.

Q36. What will be the output?

#include <stdio.h>

int main()

{

 if (sizeof(int) > -1)

 printf("Yes");

 else

 printf("No");

 return 0;

}

Ans. This Code will always print Yes on the Screen. Because sizeof(int) always

opt to be 4 bytes.

Q37. Point out which of the following variable names are

invalid:

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

thereisbookinmysoup

Ans. Gross-salary INTEREST and salary of emp is considered as invalid to be

assigned as variable name because hyphens are not allowed in variable names

and only underscore is allowed in all special characters and spaces are not

allowed in variable names.

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.

#include<stdio.h>

#include<conio.h>

int main()

{

int total=175;

float gph=25.0;

float time;

time=total/gph;

printf(“The time required to empty the tank is %d”,time);

return 0;

}

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%?

#include <stdio.h>

int main() {

 double batteryPower = 0.75;

 double x;

 x = (1 - batteryPower) / -0.2;

 printf("The battery power reaches 75%% after %.2f hours.\n", x);

 return 0;

}

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. (a) Compiler

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

a.%0 b.%d

c. %o d. %e

Ans. (c) %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. (d) %.2e

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

a. char

b. array

c. float

d. int

Ans. (b) 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. (c) “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. (d) Garbage,5

Q46. Which of the following is an identifier?

a. &fact b. Basic\_pay c. enum d. 1sum

Ans. An identifier in C is a name used to identify a variable, function, or

any other user-defined item. So identifier is :- (b) 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 d. c

Ans. (d) c

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. (a) (101101101.1)₂.

 (b) (705.52)₈.

 (c) (143C.1)₁₆.

 (d) (43.43)₅.

 (e) (1611)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. (a) (325.54)₆ = 5 \* 6^0 + 4 \* 6^1 + 5 \* 6^2 + 2 \* 6^3 + 3 \* 6^4 = 5 + 24

+ 180 + 432 + 972 = 1613₁₀

(b) (1001010110101.1110101)₂ = 1 \* 2^0 + 0 \* 2^1 + 1 \* 2^2 + 0 \* 2^3 + 1 \* 2^4 + 0 \*

2^5 + 1 \* 2^6 + 1 \* 2^7 + 0 \* 2^8 + 1 \* 2^9 + 0 \* 2^10 + 1 \* 2^11 + 0 \* 2^12 + 1 \*

2^13 + 1 \* 2^14 + 1 \* 2^15 + 0 \* 2^16 = 8193.48828125

(c) (742.72)₈ = 2 \* 8^0 + 7 \* 8^1 + 4 \* 8^2 + 7 \* 8^(-1) + 2 \* 8^(-2) = 2 + 56 +

256 + 0.875 + 0.03125 = 315.90625

(d) (AC94.C5)₁₆ = 5 \* 16^0 + C(12) \* 16^1 + 4 \* 16^2 + 9 \* 16^3 + A(10) \* 16^4 =

5 + 192 + 1024 + 36864 + 40960 = 78045

Q50. Perform the following conversion from Hexadecimal to

other number as directed-

(DB56.CD4)16 = (?)2, (?)8, (?)4

Ans. (a) Combine these binary representations together:

(D)₁₆ = (1101)₂ (B)₁₆ = (1011)₂ (5)₁₆ = (0101)₂ (6)₁₆ = (0110)₂ (C)₁₆ = (1100)₂ (D)₁₆ =

(1101)₂ (4)₁₆ = (0100)₂

And the decimal point remains the same. So:

(DB56.CD4)₁₆ = (110110110110.010011010100)₂

b) So, in octal:

(DB56.CD4)₁₆ = (6666.2324)₈

c) Convert to Decimal (Base-10):

To convert from binary to decimal, simply calculate the decimal value of the binary

number:

(DB56.CD4)₁₆ = (110110110110.010011010100)₂

Now, calculate the decimal value:

(110110110110.010011010100)₂ = 5678.32421875

So, in decimal:

(DB56.CD4)₁₆ = 5678.32421875₁₀

Q51. Perform the following conversion from octal to other

number as directed-

(473.42)8 = (?)2, (?)10, (?)16, (?)5

Ans. To convert from octal to binary, replace each octal digit with its equivalent 3-

bit binary representation:

Copy code

4 = 100 7 = 111 3 = 011 . = . 4 = 100 2 = 010

Combine these binary representations together:

(473.42)₈ = (100111011.100010)₂

b) Convert to Decimal (Base-10):

To convert from octal to decimal, you can use the following formula:

Decimal = d0 \* 8^0 + d1 \* 8^1 + d2 \* 8^2 + ...

Let's calculate it:

(473.42)₈ = 3 \* 8^0 + 7 \* 8^1 + 4 \* 8^2 + 4 \* 8^(-1) + 2 \* 8^(-2) = 3 + 56 + 256 + 0.5

+ 0.25 = 315.75

So, in decimal:

(473.42)₈ = 315.75₁₀

c) Convert to Hexadecimal (Base-16):

To convert from octal to hexadecimal, first convert the octal number to binary and

then group the binary digits into sets of four, starting from the binary point. Then,

convert each group to its hexadecimal equivalent:

(473.42)₈ = (100111011.100010)₂ Group binary digits: 1001 1101 . 1000 10 Convert

to hexadecimal: 9 D . 8 2

So, in hexadecimal:

(473.42)₈ = (9D.82)₁₆

d) Convert to Quinary (Base-5):

To convert from octal to quinary (base-5), replace each octal digit with its equivalent

3-bit quinary representation:

4 = 041 7 = 112 3 = 013 . = . 4 = 041 2 = 022

Combine these quinary representations together:

(473.42)₈ = (112041013.041022)₅

So, in quinary:

(473.42)₈ = (112041013.041022)₅

Q52. Find the value of A?

a) (23)10 = (17)A

b) (21)16 = (41)A

c) (32)8 = (101)A

Ans. (a) 4

 (b) 0

 (c) (3 + √13) OR (3 - √13)

Q53: What will be the output of following program? Assume

integer is of 2 bytes

void main()

{

int a=32770;

}

Q54.In most C compilers, an int is typically 2 bytes on most systems, and it has

a limited range of -32,768 to 32,767 (assuming a signed integer).

Here, you're attempting to assign a value of 32,770 to the int variable a,

which is outside the valid range for a 2-byte integer. This is likely to cause

an overflow, and the behavior is undefined in C.

#include<stdio.h>

You're absolutely correct. In C, the size of an **int** can vary depending on the system and compiler, but it's typically 2 or 4 bytes. When an **int** is 2 bytes, its valid range for signed integers is usually from -32,768 to 32,767, as you mentioned. Attempting to assign a value outside this range, such as 32,770, can lead to overflow, which results in undefined behavior.

Undefined behavior means that the program's behavior is unpredictable and can vary depending on the compiler and system. It could crash the program, produce incorrect results, or even appear to work correctly in some cases while failing in others.

It's essential to be cautious when working with integer types in C and ensure that your values fall within the valid range for the specific data type you are using to avoid undefined behavior and potential bugs in your code.

**Thank You**

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