ASSINGMENT OF C LANGUAGE

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.

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

float p,r,c;

printf("enter the original price of product\n");

scanf("%f",&p);

printf("enter the rate of sales tax\n");

scanf("%f",&r);

c= (((p\*r)/100)+p);

printf("Cost price will be %.2f",c);

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.

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

float hours,salary\_per\_hour,salary,extra\_hours;

printf("Hours Worked\n");

scanf("%f",&hours);

printf("salary per Hour\n");

scanf("%f",&salary\_per\_hour);

if(hours<=30)

{

salary = (hours\*salary\_per\_hour);

printf("salary of an employee is %.2f\n",salary);

}

else if(hours>30)

{

extra\_hours=(hours-30);

salary = (30\*salary\_per\_hour)+(extra\_hours\*(2\*salary\_per\_hour));

printf("salary of an employee is %.2f\n",salary);

}

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.

Solution:

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

float money = 500,apple = 2,price\_of\_apple = 50,mango = 1.5,price\_of\_mango = 35,potato = 2.5,price\_of\_potato = 10,tomato = 1,price\_of\_tomato= 15,amount\_returned;

amount\_returned = (500-((apple\*price\_of\_apple)+(mango\*price\_of\_mango)+(potato\*price\_of\_potato)+(tomato\*price\_of\_tomato)));

printf("Amount returned by shopkeeper is %.2f",amount\_returned);

return 0;

}

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

different lines?

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

printf("My name is Ayush Kumar.\n");

printf("My date of birth is 29 february 2004.\n");

printf("My mobile number is 1234567890.");

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

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

int inputInteger;

char inputCharacter;

float inputFloat;

printf("Enter Integer,Character and Float number\n");

scanf("%d %c %f", &inputInteger, &inputCharacter,

&inputFloat);

printf("\nInteger you entered is : %d", inputInteger);

printf("\nCharacter you entered is : %c", inputCharacter);

printf("\nFloating point number you entered is : %f",inputFloat);

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

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

float cost;

cost =172.53;

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

}

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.

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

float apple\_got\_by\_each = 6.5,number\_of\_Persons\_gave\_apple = 3,Total\_apples;

Total\_apples= (apple\_got\_by\_each\*number\_of\_Persons\_gave\_apple);

printf("Toatal apples are %.2f",Total\_apples);

return 0;

}

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

format correct to two decimal places.

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

float value;

printf("enter a floating point value.\n");

scanf("%f",&value);

printf("%.2f\n",value);

return 0;

}

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

digits).

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

double mobile\_number;

printf("Enter your mobile number\n",mobile\_number);

scanf("%lf",&mobile\_number);

if(mobile\_number<=9999999999 && mobile\_number>=1000000000)

{

printf("\nYour Mobile Number is %.0lf",mobile\_number);

}

else

{

printf("Invalid mobile 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)

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

int population = 30000,rate\_of\_first\_year = 20,rate\_of\_second\_year = 30;

int population\_after\_first\_year,population\_after\_second\_year;

population\_after\_first\_year = (((population\*rate\_of\_first\_year)/100)+population);

population\_after\_second\_year =(((population\_after\_first\_year\*rate\_of\_second\_year)/100)+population\_after\_first\_year);

printf("%d",population\_after\_second\_year);

return 0;

}

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

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main ()

{

char ch;

scanf("%c",&ch);

int a = ch;

printf("%d",a);

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.

ANSWER->

#include<stdio.h>

#include<conio.h>

int main ()

{

float basic\_sal;

float HRA=15;

float TA=20;

printf("Enter a basic salary\n");

scanf("%f",&basic\_sal);

float total\_sal=basic\_sal+(basic\_sal\*(HRA/100))+(basic\_sal\*(TA/100));

printf("Total salary=%.2f",total\_sal);

}

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.

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main ()

{

float x1,x2,y1,y2,m;

printf("y2 = ");

scanf("%f",&y2);

printf("y1 = ");

scanf("%f",&y1);

printf("x2 = ");

scanf("%f",&x2);

printf("x1 = ");

scanf("%f",&x1);

m = ((y2-y1)/(x2-x1));

printf("slope of line is %.2f",m);

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.

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

float wavelength,speed\_of\_light,frequency;

printf("Enter Wavelength\n");

scanf("%f",&wavelength);

printf("Enter speed of light\n");

scanf("%f",&speed\_of\_light);

frequency = (speed\_of\_light/wavelength);

printf("\nFrequency of light is %.2f",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]

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

float u = 30,a = 5,s = 70,v;

v= pow(((pow(u,2))+(2\*a\*s)),(0.5));

printf("final velocity is %.2f",v);

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 ]

ANSWER->

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()

{

float u = 0,a = 4,s,v,t = 3;

v = (u + (a\*t));

printf("Final Velocity will be %.2f\n",v);

s = (((0.5)\*(a\*(pow(t,2))))+(u\*t));

printf("distance travelled in 3 seconds will be %.2f",s);

return 0;

}

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

university roll number .

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

int roll\_no,sum = 0,r;

printf("enter your university roll number\n");

scanf("%d",&roll\_no);

for(int i=1;i<=4;i++)

{

r = roll\_no%10;

sum+=r;

roll\_no =roll\_no/10;

}

printf("Sum of last four digits of roll number is %d",sum);

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

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

float weight,height,cm,kgs;

printf("Enter your height in inches\n");

scanf("%f",&height);

printf("Enter your weight in pounds\n");

scanf("%f",&weight);

cm = (height/(0.393701));

kgs = (weight/(2.20462));

printf("height in inches is %.2f\n",cm);

printf("weight in pounds is %.2f\n",kgs);

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

ANSWER->

#include<stdio.h>

int main()

{

char option;

int sum = 0;

float product = 1.0;

return 0;

}

Q21. Write a program that reads nine integers. Display these

numbers by printing three numbers in a line separated by

commas.

ANSWER->

#include<stdio.h>

#include<conio.h>

int main ()

{

int i,number[10];

printf("enter nine integers\n");

for(i=1;i<9;i++)

{

scanf("%d\n",&number[i]);

}

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

{

printf("%d",number[i]);

if(i%3==0)

{

printf("\n");

}

else

{

printf(",");

}

}

return 0;

}

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

programming?

Header files in C programming are files that contain declarations and definitions needed for a program but are typically not meant to be compiled on their own.

The main uses of header files in C programming are

1;Function Declarations

2;Global Variable Declarations

3;Conditional Compilation

4;Library and API Interfaces

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);

ANSWER->

NO OUTPUT.

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

#include <stdio.h>

void main()

{

int x = printf("GLA UNIVERSITY");

printf("%d", x);

}

ANSWER->

GLA UNIVERSITY14

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

ANSWER->

Library functions, also known as standard library functions, are pre-defined functions provided by the C standard library or other libraries that can be used in C programs. These functions are written in C and are available for use in your programs by including the appropriate header files.

1; printf()

2;scanf()

3;strlen()

4;rand()

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);

}

ANSWER->

32 40 20

Q27. What is the meaning of following statement?

printf(“%d”,scanf(“%d%d”,&a,&b));

ANSWER->

Scanf part of the code will take two integers from the user and store it in the variable ‘a’ and ‘b’.

Printf part will print the output 2 as it take two integers from the user.

Q28. What will be the output of following program?

#include <stdio.h>

void main()

{

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

}

ANSWER->

Output= "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.

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

int distance, time=4;

printf(“enter distance in km”);

scanf(“%d”,&distance);

int speed =distance/time;

printf(“%d”,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.

ANSWER->

#include<stdio.h>

#include<conio.h>

int main()

{

float marks1=50;

float marks2=70;

float marks3=80;

float total\_marks=marks1+marks2+marks3;

float average=(total\_marks)/3;

printf("%.2f",average);

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.

ANSWER->

#include <stdio.h>

int main() {

double saurav\_money, sajal\_money, temp;

printf("Enter the amount of money given to Saurav: ");

scanf("%lf", &saurav\_money);

printf("Enter the amount of money given to Sajal: ");

scanf("%lf", &sajal\_money);

temp = saurav\_money;

saurav\_money = sajal\_money;

sajal\_money = temp;

printf("After rectifying the mistake:\n");

printf("Saurav now has: %.2lf\n", saurav\_money);

printf("Sajal now has: %.2lf\n", sajal\_money);

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.

ANSWER-.

#include<stdio.h>

#include<conio.h>

int main()

{

float speed=4;

float time\_min=3;

time\_hours=time\_min/60;

float distance=speed\*time\_hours;

printf("distance travelled: %.2fkm",distance);

return 0;

}

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

combined in a single line of program code?

ANSWER->

Yes, you 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?

ANSWER->

Comments in a C program are annotations or explanatory notes that are added to the source code for the purpose of providing information to programmers (including yourself) who read and maintain the code. Comments are ignored by the compiler and do not affect the program's functionality. They are purely for human understanding.

1: Single-Line Comments= In C, you can create a single-line comment by using the // (double forward slash) characters.

2: Multi-Line or Block Comments: Multi-line comments allow you to add comments that span multiple lines. In C, you can create a multi-line comment by enclosing the comment text between /\* and \*/ characters. Everything between these delimiters is treated as a comment.

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

ANSWER->

“&” is not added before ‘number’.

Q36. What will be the output?

#include <stdio.h>

int main()

{

if (sizeof(int) > -1)

printf("Yes");

else

printf("No");

return 0;

}

Solution: “no”.

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

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

thereisbookinmysoup

ANSWER->

VALID: “thereisbookinmysoup”

INVALID: “gross-salary INTEREST”,“salary of emp” and “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.

ANSWER->

#include <stdio.h>

int main() {

double tankSize = 175.0;

double drainRate = 25.0;

double timeRequired;

timeRequired = tankSize / drainRate;

printf("It will take %.2f hours to completely clean the tank.\n", timeRequired);

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%?

ANSWER->

#include <stdio.h>

int main() {

double desiredPower = 0.75;

double x;

x = (1 - desiredPower) / -0.2;

printf("The battery power will be at 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

ANSWER->

(A)compiler

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

a.%0 b.%d

c. %o d. %e

ANSWER->

(C)%o

Q 42. Which format specifier is used to print the exponent value

upto 2 decimal places.

a. %eb.%.2f c. %f d.%.2e

ANSWER->

(D) %o

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

a. char

b. array

c. float

d. int

ANSWER->

(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

ANSWER->

It will show a error.

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

ANSWER->

(D) garbage,5.

Q46. Which of the following is an identifier?

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

ANSWER-> (A) 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

ANSWER->

(C) 1

Q48. Perform the following conversion from Decimal to other

number as directeda) (365.55)10 = (?)2

b) (453.65)10 = (?)8

c) (5164.12)10 = (?)16

d) (23.65)10 = (?)5

e) (772)10 = (?)7

ANSWER->

1. 101101101.10001100110011001101

Q49. Covert the following numbers to decimal number systema) (325.54)6 = (?)10

b) (1001010110101.1110101)2 = (?)10

c) (742.72)8 = (?)10

d) (AC94.C5)16 = (?)10

Solution:

Q50. Perform the following conversion from Hexadecimal to

other number as directed-

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

Solution:

Q50. Perform the following conversion from Hexadecimal to

other number as directed-

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

Solution:

Q52. Find the value of A?

a) (23)10 = (17)A

b) (21)16 = (41)A

c) (32)8 = (101)A

Solution:

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

integer is of 2 bytes

void main(){

int a=32770;

printf(“%d”,a);

}

ANSWER->

The range of a 2-byte signed integer typically goes from -32,768 to 32,767. The value 32770 is outside this range, and it will cause an overflow, leading to undefined behavior in C.

The actual behavior when you run this code may vary depending on the compiler and system you are using. It may produce unexpected results or crash the program.

Q54: #include <stdio.h>

int main()

{

float c = 5.0;

printf ("Temperature in Fahrenheit is %.2f", (9/5)\*c + 32);

return 0;

}

Solution:

OUTPUT= Temperature in Fahrenheit is 33.8