Name: tanisha goyal

Section: au-2

Q1. Write a c programme 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>

int main() {

float originalprice, taxrate, totalprice;

printf("Enter the original price: ");

scanf("%f", &originalPrice);

printf("Enter the tax rate: ");

scanf("%f", &taxRate);

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

printf("Total price after tax: %.2f\n", totalPrice);

return 0;

}

Q2. Write c programme 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>

int main() {

float wagePerHour, hoursWorked, weeklyWages;

printf("Enter the wage per hour: ");

scanf("%f", &wagePerHour);

printf("Enter the number of hours worked: ");

scanf("%f", &hoursWorked);

if (hoursWorked <= 30) {

weeklyWages = wagePerHour \* hoursWorked;}

else {

weeklyWages = wagePerHour \* 30 + (wagePerHour \* 2) \* (hoursWorked – 30}

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

return 0;}

Q3. Mr. X goes to market for buying some fruit and vegetables. He is having a currency of Rs 500 with for marketing. From a shop, he purchases 2.0 kg of apple priced Rs. 50.0 per kg, 1.5 kg mangoes priced Rs. 35.0 per kg, 2.5 kg potatoes 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.

Answer:

#include <stdio.h>

int main() {

float applePrice = 50.0, mangoPrice = 35.0, potatoPrice= 10.0, tomatoPrice= 15.0;

float apple = 2.0, mango= 1.5, potato= 2.5, tomato = 1.0;

float totalCost = (applePrice \* apple) + (mangoPrice \* mango) + (potatoPrice \* potato) + (tomatoPrice \* tomato)

float givenAmount = 500.0;

float amountToReturn = givenAmount - totalCost;

if (amountToReturn >= 0) {

printf("Mr. X will receive Rs. %.2f in return.\n", amountToReturn);

} else {

printf("Mr. X does not have enough money .\n");

}

return 0;}

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

#include <stdio.h>

Int main()

{ printf(“name: tanisha”);

Printf(“\ndate of birth: 30/04/2006”);

Printf(“\nmobile number: 9256470882”);

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>

int main() {

int integer\_input;

char char\_input;

float float\_input;

printf("Enter an integer: ");

scanf("%d", &integer\_input);

printf("Enter a character: ");

scanf(" %c", &char\_input);

printf("Enter a float value: ");

scanf("%f", &float\_input);

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

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

printf("Float: %.2f\n", float\_input);

return 0;}

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

The sales total is: $ 172.53

Answer:

#include <stdio.h>

int main()

{ double cost = 172.53;

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

return 0;}

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

#include <stdio.h>

int main() {

int apples\_from\_each = 6;

double half\_apple = 0.5;

int total\_people = 3;

printf("Raju has %.2f 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 value = 12345.6789;

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

return 0;}

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

#include <stdio.h>

int main() {

long long int mobileNumber;

printf("Enter your 10-digit mobile number: ");

scanf("%lld", &mobileNumber);

if (mobileNumber >= 1000000000&&mobileNumber <= 9999999999) {

printf("You entered the mobile number: %lld\n", mobileNumber);

} else {

printf("Invalid mobile number. Please enter a 10-digit number.\n");

}

return 0;}

Q10. The population of a city is 30000. It increases by 20% during first year and 30% during second year. Write a program to find the population after 2 years?

#include <stdio.h>

int main() {

int initialPopulation = 30000;

double increasePercentage1 = 0.20;

double increasePercentage2 = 0.30;

int populationAfterYear1 = initialPopulation + (initialPopulation \* increasePercentage1);

int populationAfterYear2 = populationAfterYear1 + (populationAfterYear1 \* increasePercentage2);

printf("Initial population: %d\n", initialPopulation);

printf("Population after the second year: %d\n", populationAfterYear2);

return 0;}

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

#include <stdio.h>

int main() {

char character;

printf("Enter a character: ");

scanf("%c", &character);

int ascii\_value = (int)character;

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

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>

int main() {

float basicPay, hra, ta, salary;

printf("Enter the basic pay: ");

scanf("%f", &basicPay);

hra = 0.15 \* basicPay;

ta = 0.20 \* basicPay;

salary = basicPay + hra + ta;

printf("Basic Pay: %.2f\n", basicPay);

printf("HRA: %.2f\n", hra);

printf("TA: %.2f\n", ta);

printf("Total Salary: %.2f\n", salary);

return 0;}

Q13. Write a programme 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 <math.h>

int main() {

double xp, yp, xq, yq;

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);

double slope = (yq - yp) / (xq - xp);

double angle\_rad = atan(slope);

double angle\_deg = angle\_rad \* (180.0 / M\_PI);

printf("Slope of the line: %.2lf\n", slope);

printf("Angle of inclination: %.2lf degrees\n", angle\_deg);

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>

int main() {

int k = 5;

float SPI= 0.0;

float gradepoints[k];

int credits[k];

printf("Enter grade points and credits for each course:\n");

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

printf("Course %d - Grade Points: ", i + 1);

scanf("%f", &grade\_points[i]);

printf("Course %d - Credits: ", i + 1);

scanf("%d", &credits[i]);}

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

SPI+= (grade\_points[i] \* credits[i]);

SPI /= k;

printf("SPI: %.2f\n",SPI)

return 0;

}

Q15. Write a program to calculate the frequency (f) of a given wave with wavelength and speed(c) ,where c=wavelength\* frequency.

#include <stdio.h>

int main() {

double c, lambda;

printf("Enter the speed of the wave (c): ");

scanf("%lf", &c);

printf("Enter the wavelength of the wave : ");

scanf("%lf", &lambda);

double f = c / lambda;

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

return 0;}

Q16. A car travelling at 30 m/s accelerates steadily at 5 m/s2 for a distance of 70m. what is the final velocity of the car? [hint: v2=u2+2as]

include <stdio.h>

#include <math.h>

int main() {

double initial\_velocity = 30.0;

double acceleration = 5.0;

double distance = 70.0;

double final\_velocity;

final\_velocity = sqrt(pow(initial\_velocity, 2) + 2 \* acceleration \* distance);

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

return 0;}

Q17. A horse accelerates steadily from rest at 4m/s2 for 3s. 9a0 what is its final velocity? (b) how far has it travelled? [hint: (a)v=u+at (b) s=u+1/2 at2]

#include <stdio.h>

int main() {

double initial\_velocity = 0.0;

double acceleration = 4.0;

double time = 3.0;

double final\_velocity;

double distance;

final\_velocity = initial\_velocity + acceleration \* time;

distance = (initial\_velocity \* time) + (0.5 \* acceleration \* time \* time);

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);

return 0;}

Q18. Write a programme to find the sum of your four last digit of your university roll number.

#include <stdio.h>

int main() {

char rollNumber[] = "12345678";

int sum = 0;

if (rollNumber >= 4) {

for (int i = (rollNumber) - 4; i < (rollNumber); i++) {

sum += rollNumber[i] - '0';

}

printf("The sum of the last four digits of the roll number is: %d\n", sum);

} else {

printf("Invalid roll number. It should have at least four digits.\n");

}

return 0;}

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

#include <stdio.h>

int main() {

double height = 175.0;

double weight= 70.0;

double cm = 0.393701;

double kg= 2.20462;

double height = height \* cm / 12.0;

double weight = weight \* kg;

printf("Height: %.2lf cm is equivalent to %.2lf feet\n", height, height);

printf("Weight: %.2lf kg is equivalent to %.2lf pounds\n", weight\_kg, weight\_pound);

return 0;}

Q20. Code the variable declaration for each of the following:

1. A character variable named option.
2. An integer variable sum initialized to 0.
3. A floating point variable, product,initialized to 1 .

Answer: (a) char option;

(b) int sum=0;

(c ) float product=1.0;

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

#include <stdio.h>

int main() {

int numbers[9];

printf("Enter nine integers, one at a time:\n");

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

{ scanf("%d", &numbers[i]);}

printf("Numbers in groups of three separated by commas:\n");

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

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

if (i % 3 == 2)

{ printf(",\n");}

else

{ printf(", ");

return 0;}

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

Answer: header files are predefined libraries and we use them in c programming to use many functions like printf(), scanf() because they are defined in these libraries.

Q23. What will we the output of the following program?

#include<stdio.h>

Int main()

{int num=0.70;

Printf(“%d\t%o\t%x”,num,num,num);}

Answer: output will be 0,0,0.

Q24. What will be the output of the following program?

#include<stdio.h>

Void main()

{int x= printf(“GLA UNIVERSITY”);

Printf(“%d”,x);}

Answer: output will be GLA UNIVERSITY14

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

Answer: library functions are printf(), scanf(), strlen(), sqrt().

Q26. What will be the output of the 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: output will be:-

c is placement oriented languagehi30 36 1e

Q27. What is the meaning of the statement?

Printf(“%d,scanf(“%d%d”, &a,&b));

Answer: statement print number 2 to the console, indicating that two integers were successfully read by scanf.

Q28. What will be the output of the following program?

#include<stdio.h>

Void main()

{printf(“\”C%% FOR %% PLACEMENT\””);}

Answer: output will be:

"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() {

double distance, time, speed;

printf("Enter the distance between GLA University and Delhi (in kilometers): ");

scanf("%lf", &distance);

time = 4.0;

speed = distance / time;

printf("The speed of the bus from GLA University to Delhi is %.2lf km/h.\n", speed);

return 0;}

Q30. In a exam satyam got 30 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>

int main() {

int satyammarks = 30;

int sumanmarks = 70;

int shyammarks = 80;

int totalmarks = satyammarks + sumanmarks + shyammarks;

double average = (double)totalmarks / 3.0;

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

return 0;}

Q31. One day, mohan called Saurav and sajal and some money to them, later he realised 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>

int main() {

double saurav\_money, sajal\_money;

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);

double temp = saurav\_money;

saurav\_money = sajal\_money;

sajal\_money = temp;

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

printf("Amount of money given to Saurav: %.2lf\n", saurav\_money);

printf("Amount of money given to Sajal: %.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.

#include <stdio.h>

int main() {

double speed = 4.0;

double time\_minutes = 3.0;

double time\_hours = time\_minutes / 60.0;

double distance = speed \* time\_hours;

printf("Distance traveled: %.2f kilometers\n", distance);

return 0;

}

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

Answer:

Yes you can combine two or more escape sequences such as \n and \t in a single line of program code.

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

Answer:

These increase code read ability in this, message or statement will not compile or execute by the compiler.

Printf(“………”)//print statement

//=for single line

/\*=for multi lines

Q35. What is wrong in this statement?

Scanf(“%d”, number);

Answer:

There is no “&” before number.

Q36. What will be the output?

#include <stdio.h>

Int main()

{if(sizeof(int)>-1)

printf(“yes”);

else

printf(“no”)

return 0;}

Answer: output will be no.

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

Gross-salary INTEREST ,salary of emp, avg, thereisbookinmysoup

Answer: Gross-salary INTEREST and salary of emp variables are invalid.

Q38. Tom works at a aquarium shop on 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 sphon. Tom wonders if the tank will finish draining out and finds that 12.5 gallons drain out in 30 minutes. So, he figures that the rate is 25 gallon per hour. Develop a c program to help tom to calculate time required to completely clean tank.

#include<stdio.h>

int main()

{int totalgallons=175;

int draining=25;

float timerequired=(float)totalgallons/draining;

printf(“time required to completely clean the tank: %.2f hours\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=-0.2x+1. Develop a c program to calculate after how many hours the battery power is at 75%?

#include <stdio.h>

int main() {

double y = 0.75;

double x;

x = (1 - y) / (-0.2);

printf("It takes %.2f hours 75%%.\n", x);

return 0;}

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

Answer: (b) interpreter

Q41. What is the format specifier for an octal number?

Answer: (c) %0

Q42. Which format specifier is used to print the exponent value upto 2 decimal places.

Answer: (d) %.2e

Q43. Which of the following is not a basic data type?

Answer: (b) array

Q44. What is the output of the following code?

#include <stdio.h>

Void main()

{int x=0;

X=printf(“\”hello\b\””);

Printf(“%d”,x);}

Answer: (c)

Output will be: "hell"8

Q45.what is the output of the following code?

#include <s

#include <stdio.h>

Int main()

{int b,c=5;

Int (“%d, %d” ,b,c);

}

Answer: (d) garbage,5

Q46. Which of the following is an identifier?

Answer: (b) Basic\_pay

Q47. What is the output of the following program?

#include<stdio.h>

Void main()

{char x, a=’c’;

x=printf(“%c”,a);

printf(“5%d”,x);

}

Answer: (a) c1

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

1. (365.55)10 =(101101101.10011)2
2. (453.65) 10 =(705.51)8
3. (5164.12)10 =(1420.21)16
4. (23.65)10 =(43.3)5
5. (772)10 =(2045)7

Q49. Convert the following numbers to decimal number system-

1. (325.54)6 =(125.9444)10
2. (1001010110101.1110101)2 =(5120.90625)10
3. (742.72)8 =(482.90625)10
4. (AC94.C5)16 =(44181.76953125)10

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

(DB56.CD4)16 = (1101101101010110.110011010100)2 (33532.3164)8 (331332.3134)4

Q51.perform the following conversion from octal to other number as directed –

(473.42)8 = (100111011.100010)2 (315.25)10 (9D.82)16 (214.102)5

Q52.Find the value of A?

1. (23)10 = (17)4
2. (21)16 =(41)0
3. (32)8 = (101)1

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

Void main()

{int a=32770;

Printf(“%d”,a);}

Answer:

Integer of 2 bites can store values from -32767 to 32767 for signed integer when you assign 32770 to ‘a’ the output will not be predicted it might print a seemingly random value or behave unexpectedly.

Q54.#include <stdio.h>

Int main()

{int a =32770;

Printf(“%d”,a);

}

Answer:

Output will be : temperature in Fahrenheit is 37.00

.