

Department of Computer Science
Sir Syed University of Engineering & Technology



PROGRAMMING FUNDAMENTAL
PRACTICAL PROGRAM QUESTIONS

“Before hitting the internet button, think again and again and again! May be your solution is just a step away!”

- Sallar Khan

Note: Before Starting the practice, make sure to assign a deadline to yourself first.

Q1 - Write a program that stores monthly rainfall amounts in an array. The program then displays the monthly rainfall amounts, the total annual rainfall amount, the average rainfall amount, the highest rainfall amount, or the lowest rainfall amount First get the rainfall amounts for the 12 months.

Q2 - Write a C++ program that will display if a student is pass or not in his exam. (50% or more is passing). If the student is Pass then your program should display which letter the student has obtained: - 85% or more E for excellent - 75% or more but less than 85% O for Outstanding - 65% or more but less than 75% G for good - Less than 65% S for satisfactory If however the student is Fail (below 50% marks) your program should display. Whether the student should Resit or Redo depending on the following criteria. - 33% or more Resit in exam - Less than 33% Redo course.

Q3 - Write a C++ program in which user enter his NTS and FSc marks and your program will help student in selection of university. Based on these marks Student will be allocated a seat at different department of different university. University Name Departments Criteria Oxford University IT Above 70% in Fsc. and 70 % in NTS Electronics Engr: Above 70% in Fsc. and 60 % in NTS Telecommunication Above 70% in Fsc. and 50 % in NTS MIT IT 70% -60 % in Fsc. and 50 % in NTS Chemical Engr: 59% – 50 % in Fsc. and 50 % in NTS Computer Engr: Above 40% and below 50 % in Fsc. and 50 % in NTS.

Q4- Write a program that continually calculates the cube of a number until the user enters a number that is divisible by both 2 and 3. Expected Output: Enter a number: 3 Cube of 3 is: 27 Enter a number: 2 Cube of 2 is: 8 Enter a number: 12.

Q5- Write a program that calculates the total point earned by a football team over a series of games and calculates the average of team. It allows the user to enter the series of game points, then -1 to signal the end of the list.

Q6- An electronics company sells circuit boards at 40% profit. Write a program that will calculate the selling price of a circuit board that costs \$12.67. Display the result on the screen.

Q7- Write a C++ program to print the bill. Take the units consumed Accordingly calculate amount for 1st 100 units @ 1Rs.(any currency)/unit for next 100 units @ 2 Rs./unit for next 100 units @ 3 Rs./unit for next 200 units @ 4 Rs./unit for next units @ 5 Rs./unit tax to be added in final amount @ 10%. Meter charge 50 Rs. extra. Print the bill.

Q8- Write a C++ program which takes the price of bakery items ranging from 0-999 if you enter PKR 1-200 it should show cakes if PKR 200 – 400 SHOW BISCUITS if PKR 400- 700 show miscellaneous if PKR 700 – 999 show ice cream your program to should run 3 times using While loop in the end also take the average of all items price.

Q9- Write a C++ program that will ask user to enter two integral numbers. The numbers should be swapped without using any third variable. Your code should be able to do the same process for 30 cycles. It should also show the swapped numbers at the each cycle.

Q10- FBR Pakistan announces the tax policy for 2015-2016. As per the Finance Act passed by Government of Pakistan, following slabs and income tax rates shall be applicable for salaried persons and salaried class for the year 2015-2016: 1. Where the taxable salary income does not exceed Rs 400,000, the rate of income tax is 0%; 2. Where the taxable income exceeds Rs 400,000 but does not exceed Rs 500,000, the rate of income tax is 2% of the amount exceeding Rs 400,000. 3. Where the taxable income exceeds Rs 500,000 but does not exceed Rs 750,000, the rate of income tax is Rs. 2,000 + 5% of the amount exceeding Rs 500,000. 4. Where the taxable income exceeds Rs 750,000 but does not exceed Rs 1,400,000, the rate of income tax is Rs 14,500 + 10% of the amount exceeding Rs 750,000. 5. For the rest of cases, the tax rate is Rs.17,500+20% of the amount exceeding Rs. 750,000. Being computer programmer, you have to write a program that will calculate the tax of salaried persons as per given policy.

Q11- Write a program that asks the user to enter a number of seconds. – There are 60 seconds in a minute. If the number of seconds entered by the user is greater than or equal to 60, the program should display the number of minutes in that many seconds. – There are 3,600 seconds in an hour. If the number of seconds entered by the user is greater than or equal to 3,600, the program should display the number of hours in that many seconds. – There are 86,400 seconds in a day. If the number of seconds entered by the use is greater or equal to 86,400, the program should display the number of days in that many seconds. Using same method also calculate it for years and month.

Q12- A software company sells a package that retails for \$99. Quantity discounts are given according to the following table: Quantity Discount : 10-19 20% 20-49 30% 50-99 40% 100 or more 50% Write a program that asks for the number of units sold and computes the total cost of the purchase.

Q13- Write a C++ program to check triangle by entering 3 angles.

Q14- Write a C++ program to find ASCII Code for Characters, numbers and symbols.

Q15- Write a C++ programs to determine transpose of a matrix with function and without function.

Q16- C++ Program for Decimal to Hexadecimal Conversion.

Q17- To make telephone numbers easier to remember, some companies use letters to show their telephone number. For example, using letters, the telephone number 438-5626 can be shown as GET LOAN. In some cases, to make a telephone number meaningful, companies might use more than seven letters. For example, 225-5466 can be displayed as CALL HOME, which uses eight letters. Write a program that prompts the user to enter a telephone number expressed in letters and outputs the corresponding telephone number in digits. If the user enters more than seven letters, then process only the first seven letters. Also output the A,S (hyphen) after the third digit. Allow the user to use both uppercase and lowercase letters as well as spaces between words. Moreover, your program should process as many telephone numbers as the user wants.

Q18- Write a program that displays the following menu: 1. Calculate the area of a circle 2. Calculate the area of a rectangle 3. Calculate the area of a triangle 4. Quit Enter your choice (1-4): If the user enters 1, the program should ask for the radius of the circle and then display its area. Use the following formula: $\text{area} = \text{PI} * r * r$. Use 3.14159 for Pi and the radius of the circle for r. If the user enters 2, the program should ask for the length and width of the rectangle and then display the rectangle's area. Use the following formula: $\text{area} = \text{length} * \text{width}$ If the user enters 3, the program should ask for the length of the triangle's base and its height, and then display its area. Use the following formula: $\text{area} = \text{base} * \text{height} * 0.5$ If the user enters 4, the program should end. Input validation: Display an error message if the user enters a number outside the range of 1 – 4 when selecting an item from the menu. Do not accept negative values for the circle's radius, the rectangle's length or width, or the triangle's base or height.

Q19- Write a program that asks for the names of three runners and the time it took each of them to finish the race. The program should display who came in first,second, and third place. Input validation: only accept positive numbers for the times.

Q20- Ali khan from SSUET doing CSD bought 600 shares of stock at a price of \$21.77 per share. He must pay his stock broker a 2% commission for the transaction. Write a program that calculates the display the following: The amount paid for the stock alone (without the commission) The amount of the commission The total amount paid.

Q21-What will be output of following program? If got any error, solve it with style.

```
#include<stdio.h>

int main(){

char far *p =(char far *)0x55550005;

char far *q =(char far *)0x53332225;

*p = 80;

(*p)++;

printf("%d",*q);

return 0;

}
```

Q22-What will be output of following program? If got any error, solve it with style.

```
#include<stdio.h>

#include<string.h>

int main(){

char *ptr1 = NULL;

char *ptr2 = 0;

strcpy(ptr1," c");

strcpy(ptr2,"questions");

printf("\n%s %s",ptr1,ptr2);

return 0;

}
```

Q23-Write a C++ program to count vowels and consonants in a string using pointer.

Q24-Write a program to swap two numbers using pointers.

Q25-Write a C++ program to calculate length of the string using recursion.

Q26-Write a C++ Program to calculate total elapsed time by program/ function.

Q27- Create a change-counting game that gets the user to enter the number of coins required to make exactly one dollar. The program should ask the user to enter the number of pennies, nickles, dimes, and quarters. If the total value of the coins entered is equal to one dollar, the program should congratulate the user for winning the game. Otherwise, the program should display a message indicating whether the amount entered was more than or less than one dollar

Q28- If scientists know the wavelength of an electromagnetic wave, he or she can determine what type of radiation it is. Write a program that asks for the wavelength of an electromagnetic wave in meters and then displays what the wave is?

THE END

*“This ‘The End’ is just for pages, while your career footsteps
are just started!”*

- Sallar Khan