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Basics of C

Sr. No.	Assignment Question
1	Write a pseudo code and draw a flowchart to accept a value in degrees Celsius and to convert it into Fahrenheit. [Hint: $C/5 = (F-32)/9$].
2	Write a pseudo code and flowchart to accept a student's marks in Physics, Chemistry, and Biology. The total of these marks as well as the average should be displayed.



Variables and Data

Sr. No.	Assignment Question
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- 1 Match the following:

Column A	Column B
8	Invalid Identifier Names
10.34	Integer Constants
A B C	Character Constants
abc	Double
23	Floating Point Numbers
12112134.86868686886	Valid Identifier Names
_A1	
\$abc	
'A'	

Table 2.1: BooksMaster Table

Hint: Multiple items in Column A can map to a single element in Column B

- 2 What will be the value of the variables at the end in each of the following code statements:

1. `int a=4^4`
2. `int a=23.34`
3. `a = 10`
`b = a + a++`
4. `a=-5`
`b=-a`



Variables and Data Types (Lab)

Sr. No.	Assignment Question
1	Write a C program to find the area and perimeter of a circle.
2	Write a C program that accepts the salary and age from the user and displays the same on the screen as output.



Operators and Expressions

Sr. No.	Assignment Question
1	Write a program to accept and add three numbers.
2	<p>For the following values, write a program to evaluate the expression</p> $z = a*b + (c/d) - e*f;$ <p>a=10 b=7 c=15.75 d=4 e=2 f=5.6</p>
3	Write a program to evaluate the area and perimeter of the rectangle.
4	Write a program to evaluate the volume of a cylinder.
5	<p>Write a program to evaluate the net salary of an employee given the following constraints:</p> <p>Basic salary : \$ 12000</p> <p>DA : 12% of Basic salary</p> <p>HRA : \$150</p> <p>TA : \$120</p> <p>Others : \$450</p> <p>Tax cuts – a) PF :14% of Basic salary and b) IT: 15% of Basic salary</p> <p>Net Salary = Basic Salary + DA + HRA + TA + Others – (PF + IT)</p>



Operators and Expressions (Lab)

Sr. No.	Assignment Question
1	<p>What is the assigned (left-hand side) value in each case?</p> <pre> int s, m=3, n=5, r, t; float x=3.0, y; t = n/m; r = n%m; y = n/m; t = x*y-m/2; x = x*2.0; s = (m+n)/r; y = --n; </pre>
2	<p>Write a program which will take the input as a floating (real) number. This number represents the centimeters. Print out the equivalent number of feet(floating, 1 decimal) and inches (floating, 1 decimal), with feet and the inches given to an accuracy of one decimal place.</p> <p>Assume 2.54 centimeters per inch, and 12 inches per foot.</p> <p>If the input value is 333.3, the output format should be:</p> <p>333.3 centimeters is 10.9 feet</p> <p>333.33 centimeters is 131.2 inches</p>
3	<p>Find the value of iResult for the following assignment statements:</p> <pre> int iResult, a = 10, b = 8, c = 6, d = 5, e =2; iResult = a - b - c - d; iResult = a - b + c - d; iResult = a + b / c / d; iResult = a + b / c * d; iResult = a / b * c * d; iResult = a % b / c * d; iResult = a % b % c % d; iResult = a - (b - c) - d; iResult = (a - (b - c)) - d; iResult = a - ((b - c) - d); iResult = a % (b % c) * d * e; iResult = a + (b - c) * d - e; iResult = (a + b) * c + d * e; iResult = (a + b) * (c / d) % e; </pre>



Input and Output in 'C'

Sr. No.	Assignment Question
1	<p>A. Use the <code>printf()</code> statement and do the following :</p> <p>Print out the value of the integer variable <code>sum</code></p> <p>Print out the text string "Welcome", followed by a new line.</p> <p>Print out the character variable <code>letter</code></p> <p>Print out the <code>float</code> variable <code>discount</code></p> <p>Print out the <code>float</code> variable <code>dump</code> using two decimal places</p> <p>Use the <code>scanf()</code> statement and do the following:</p> <p>To read a decimal value from the keyboard, into the integer variable <code>sum</code></p> <p>To read a <code>float</code> variable into the variable <code>discount_rate</code></p>
2	<p>Write a program which prints the ASCII values of the characters 'A' and 'b'.</p>
3	<p>Consider the following program:</p> <pre>#include <stdio.h> void main() { int breadth; float length, height; scanf("%d%f%6.2f",breadth,&length,height); printf("%d %f %e",&breadth, length, height); }</pre> <p>Correct the errors in the above program.</p>

- 4 Write a program which takes name, basic , daper (ie, percentage of D.A), bonper (ie, percentage bonus) and loandet (loan amount to be debited) for an employee. Calculate the salary using the following relation:

$$\text{salary} = \text{basic} + \text{basic} * \text{daper} / 100 + \text{bonper} * \text{basic} / 100 - \text{loandet}$$

Data is:

name	basic	daper	bonper	loandet
M A R K	2500	55	33.33	250.00

Table 6.1: Employee Table

Calculate salary and then print the result under the following headings.
(Salary to be printed to the nearest dollar.)

5

Name	Basic	Salary
------	-------	--------

Write a program that asks for your first name and last name, and then prints the names in the format last name, first name



Condition

Sr. No.	Assignment Question								
1	Write a program that accepts two numbers a and b and checks whether or not a is divisible by b .								
2	Write a program to accept 2 numbers and tell whether the product of the two numbers is equal to or greater than 1000.								
3	<p>Write a program to accept 2 numbers. Calculate the difference between the two values.</p> <p>If the difference is equal to any of the values entered, then display the following message:</p> <p>Difference is equal to value <number of value entered></p> <p>If the difference is not equal to any of the values entered, display the following message:</p> <p>Difference is not equal to any of the values entered</p>								
4	<p>Montek company gives allowances to its employees depending on their grade as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Grade</th><th>Allowance</th></tr> </thead> <tbody> <tr> <td>A</td><td>300</td></tr> <tr> <td>B</td><td>250</td></tr> <tr> <td>Others</td><td>100</td></tr> </tbody> </table>	Grade	Allowance	A	300	B	250	Others	100
Grade	Allowance								
A	300								
B	250								
Others	100								
5	<p>Calculate the salary at the end of the month. (Accept Salary and Grade from the user)</p> <p>Write a program to evaluate the Grade of a student for the following constraints:</p> <p>If marks > 75 – grade A</p>								

If $60 < \text{marks} < 75$ – grade B

If $45 < \text{marks} < 60$ – grade C

If $35 < \text{marks} < 45$ - grade D

If $\text{marks} < 35$ – grade E



Condition (Lab)

Sr. No.	Assignment Question																
1	Declare two variables x and y. Assign values to these variables. Number x should be printed only if it is less than 2000 or greater than 3000, and number y should be printed only if it is between 100 and 500.																
2	Write a program to show your computer's capabilities. The user types in a letter of the alphabet and your program should display the corresponding language or package available. Some sample input and output is given below : <div style="text-align: center; margin: 10px 0;"> <table border="1"> <thead> <tr> <th>Input</th><th>Output</th></tr> </thead> <tbody> <tr> <td>A or a</td><td>Ada</td></tr> <tr> <td>B or b</td><td>Basic</td></tr> <tr> <td>C or c</td><td>Cobol</td></tr> <tr> <td>D or d</td><td>dBase III</td></tr> <tr> <td>f or F</td><td>Fortran</td></tr> <tr> <td>p or P</td><td>Pascal</td></tr> <tr> <td>V or V</td><td>Visual C++</td></tr> </tbody> </table> </div> <p style="text-align: center;">Table 8.1: Grade Table</p> <p>Using the 'switch' statement to choose and display the appropriate message. Use the default label to display a message if the input does not match any of the above letters.</p>	Input	Output	A or a	Ada	B or b	Basic	C or c	Cobol	D or d	dBase III	f or F	Fortran	p or P	Pascal	V or V	Visual C++
Input	Output																
A or a	Ada																
B or b	Basic																
C or c	Cobol																
D or d	dBase III																
f or F	Fortran																
p or P	Pascal																
V or V	Visual C++																
3	Accept values in three variables and print the highest value.																



Loop

Sr. No.	Assignment Question
1	Write a program to print the series 100, 95 , 90, 85,....., 5.
2	Accept two numbers num1 and num2. Find the sum of all odd numbers between the two numbers entered.
3	Write a program to generate the Fibonacci series. (1,1,2,3,5,8,13,.....).
4	Write a program to display the following patterns.
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>(a)</p> <pre> 1 12 123 1234 12345 </pre> </div> <div style="text-align: center;"> <p>(b)</p> <pre> 12345 1234 123 12 1 </pre> </div> </div>
5	Write a program to generate the following pattern.
	<pre> ***** ***** ***** **** *** ** *</pre>



Loop (Lab)

Sr. No.	Assignment Question
1	Declare a variable which has the age of the person. Print the user's name as many times as his age.
2	Write a program to generate the following pattern: 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 1 2 3 4 5 6 1 2 3 4 5 6 7 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8 9
3	Write a program to print a multiplication table for a given number.



Arrays

Sr. No.	Assignment Question
1	Write a program to arrange the following names in alphabetical order. George Albert Tina Xavier Roger Tim William
2	Write a program to count the number of vowels in a line of text.
3	Write a program that accepts the following numbers in an array and reverses the array. 34 45 56 67 89



Arrays (Lab)

Sr. No.	Assignment Question
1	Write a C program to find the minimum and the maximum value in an array.
2	Write a C program to count the number of vowels and the number of consonants in a word.



Pointers

Sr. No.	Assignment Question
1	Write a program to accept a string and find out if it is a palindrome.
2	Write a program using pointer to strings that accepts the name of an animal and a bird and returns the names in plural.



Pointers (Lab)

Sr. No.	Assignment Question
1	Write a C program to find the minimum and the maximum value in an array.
2	Write a C program to count the number of vowels and the number of consonants in a word.



Functions (Lab)

Sr. No.	Assignment Question
1	Write a C program to find the area and perimeter of a circle.
2	Write a C program to calculate the factorial of an integer.



Strings

Sr. No.	Assignment Question
1	Write a program that accepts two strings. The program should determine whether the first string occurs at the end of the second string.
2	Write a program that accepts an array of integers and displays the average. Use a function to calculate the average.



Strings (Lab)

Sr. No.	Assignment Question
1	Write a C Program to accept 5 names and a prefix. Insert the prefix at the beginning of each name in the array. Display the modified names.
2	Write a C Program to accept the average yearly temperature of the past five years, for five cities. Display the maximum and minimum temperature for each city. Use functions to determine the maximum and minimum temperatures.



Advanced Data Types & Sorting

Sr. No.	Assignment Question
1	Write a C program to implement an inventory system. Store the item number, name, rate and quantity on hand in a structure. Accept the details for five items into a structure array and display the item name and its total price. At the end, display the grand total value of the inventory.
2	Write a C program to store the names and scores of 5 students in a structure array. Sort the structure array in descending order of scores. Display the top 3 scores.



Advanced Data Types & Sorting (Lab)

Sr. No.	Assignment Question
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- | | |
|---|---|
| 1 | Write a C program to store 5 lengths in a structure array. The lengths should be in the form of yards, feet and inches. Sort and display the lengths. |
| 2 | Write a C program to store employee details in a structure array. The data should include employee ID, name, salary, and date of joining. The date of joining should be stored in a structure. The program should perform the following operations based on a menu selection: |

- a. Increase the salaries according to the following rules:

Salary Range	Percentage increase
≤ 2000	15 %
> 2000 and ≤ 5000	10 %
> 5000	No increase

Table 20.1: Salary Table

- b. Display the details of employees who complete 10 years with the company.



File Handling

Sr. No.	Assignment Question
1	Write a program that accepts data into a file and prints it in reverse order.
2	Write a program that transfers data from one file to another, excluding all the vowels (a, e, i, o, u). Exclude vowels in both upper and lower case. Display the contents of the new file.



File Handling (Lab)

Sr. No.	Assignment Question
1	Write a C program to copy the contents of one file onto another excluding the words <code>a</code> , <code>an</code> and <code>the</code> .
2	Write a C program to accept two series of numbers. Store each series in a separate file. Sort the series in each file. Merge the two series into one, sort, and store the resultant series into a new file. Display the contents of the new file.



--- End of Assignments ---