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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course Name:** | **Programming Fundamentals** | **Course Code:** | **CS** |
| **Program:** | **CS** | **Semester:** | **Fall 2019** |
| **Duration:** | **60 Minutes** | **Total Marks:** | **20** |
| **Paper Date:** |  | **Weight** |  |
| **Section:** | **ALL** | **Page(s):** | **2** |
| **Exam Type:** | **Sessional - I** |  |  |
| **Student : Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Roll No.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section:\_\_\_\_\_\_\_** | | | | |
| **Instruction/Notes:** | Solve the exam on this question paper. You may use rough sheets, but they must not be attached. | | | |

**Problem 1** **[5 pts]** The following C++ code is designed to take an integer Number as input and it should compute and print total number of years, months, weeks and days, possible in this Number. Assume there are 365 days in a year and 30 days in a month.

For example, if the input number is **800**, then it should print*,*

*In Number 800 there are 2 Years 2 Months 1 Weeks and 3 Days.*

If the input number is **370,** then it should print,

*In Number 370 there are 1 Years 0 Months 0 Weeks and 5 Days****.***

Unfortunately, the program is not working correctly. Identify the **logical errors** in the code below **by circling them**, and provide corrections in the corresponding line based on the above description.

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| **code** | **Corrections (only)** |
| y, m, w, d, a, number |  |
| PRINT "Enter a Number: " |  |
| INPUT number |  |
| y = number / 365 |  |
| a = number / 365 |  |
| m = a / 30 |  |
| a = a % 30 |  |
| w = a % 7 |  |
| d = a % 7 |  |
| PRINT "In Number " , number , " there are " |  |
| PRINT y , " Years " , m , " Months " , w , " Weeks and " , d , " Days." |  |

**Problem 2** **[5 pts]** Give the output of the following code for different inputs of variable extra in the box provided.

|  |  |  |  |  |  |  |  |  |  |
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| extra = 0  READ extra;  if (extra < 0){  PRINT "small"  }  else if (extra is 0){  PRINT "medium";  }  else{  PRINT "large";  } | |  |  | | --- | --- | | **extra** | **Output** | | 2 |  | | -38 |  | | 0 |  | |

**Problem 3** **[10 pts]** Write a pseudo-code that prints the first **n** terms of the Tick-Tock series. The value of **n** is taken as input. The first 8 terms of the Tick-Tock series, i.e., for **n**=8 are as follows:

2 - 5 + 4 -10 + 6 - 15 + 8 - 20

Can you guess the pattern? The odd terms are multiples of 2 and in increasing order (2, 4, 6, 8 etc.). The even terms are increasing multiples of 5 and in negative form. The terms are alternatively positive and negative. Nothing should be printed if the value of **n** is below 1.

**For Example:**

If the input is **n**=5, the pseudo-code prints: 2 - 5 + 4 -10 + 6

If input is **n**=10, the pseudo-code prints: 2 - 5 + 4 -10 + 6 - 15 + 8 - 20 + 10 - 25

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