**CE100: Computer Fundamentals & Programming**

**Midterm Lab Exam (Fall 2021)**

***Name ........................................*** ***Roll# ...................................***

**Instructions:**

1. Please try to solve all the questions in the allocated space.
2. Time allowed is the maximum time allowed to solve the paper.
3. It is a closed book and closed notes exam.
4. Every question has the marks mentioned in the right most column, so manage the time and answers according to mentioned numbers.
5. You should not be taking assumption without mentioning those.
6. **Anybody found cheating or helping any fellow during exam will get his/her paper cancelled immediately.**

***Time allowed: 120 Minutes Maximum Marks: 50***

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|  | **Marks Distribution** | | | |  | **Total** |
| **Question** | **0** | **1 a** | **1 b** | **1 c** | **1 d** |
| **CLO** | 1 | 2 | 2 | 2 | 2 |
| **Total Marks** | **10** | **10** | **10** | **10** | **10** | **50** |
| **Marks Obtained** |  |  |  |  |  |  |

**Teaching Team:**  Usama Bin Shakeel, Aqsa Khalid & Nadir Abbas

**Q0 is to ensure you are using proper environment, GitHub, Cygwin, menu & IDE.**



A milkman got to know that you are becoming an engineer, he is not good in maths, and has a difficulty to bill all his customers on monthly basis, therefore he has few things in his wishlist that if you can code as a program for him for monthly billing. Each functionality in his wishlist would be accessible through a menu.

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| Q1 | a- Milkman should have capability to enter quantity (can be in decimal numbers) of the milk he delivered on each day from day 1 - 31, and enter the milk rate in rupees per litre, your program should be able to calculate bill for that client. | **10** |
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| Q1 | b- Milkman brings milk in package of one litre each, so he wants to charge partial litres with a different rate, eg. 2.5 litres will be charged at 2 x litre rate + 0.5 x partial litre rate. Since partial usage could potentially left him in loss if it gets wasted | **10** |
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| Q1 | c- Milkman wants to have a capability to dynamically inform number of days a bill should count, to entertain different number of days in a month and few clients joining his service in the middle of the month. | **10** |
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| Q1 | d- Milkman, got to know that you have great understanding of recursive functions, therefore he wants you to do the functionality in part (a) with recursive functions approach | **10** |
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