Graphic Era HILL UNIVERSITY
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Department of Computer Science & Engineering

Mathematical Foundation of Computer Science (TBC-103)

BCA, 1st Semester Assignment #03/Date of issue: 14/11/2023 Submission Due 21/11/2023

Instructions:

- ANSWER NEATLY AND LEGIBLY on A4 sheets if available.
- Sketch diagrams wherever relevant. Explain your notations explicitly and clearly.
- An incomplete assignment is NOT acceptable for submission.
- Once you submit your assignment, you will be expected to answer all the questions there INDEPENDENTLY.
- Page number your answer sheets sequentially.
- On the top of your first sheet, write your Name, Year, Section, Roll Number, Due Date and Date of Submission.

Q1. Let c and d be two positive integers. Then prove that gcd (c, d) . lcm (c, d) = cd.

Q 2. Use the Euclidean algorithm to find the gcd of each pair of integers.

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Q 3. If a, b, c are any three integers such that gcd (a, c) = 1 and gcd (b, c) = 1, then show that gcd (ab, c) = 1.

Q 4. If gcd (a, b) = 1, then gcd (a^2 , b^2) = 1.

Q 5. Assuming that gcd (a, b) = 1, prove that gcd (a+b, a^2 – ab + b^2) = 1 or 3.