Assignment-IVBA

Instructions

- Write your information (name, id, section department etc.) on the front page.
- Submit a PDF version of this file using the link : https://forms.gle/5mQfRA9QsCjwuwmi9 by the mentioned date.
- Name your pdf file as "YourName_ID". e.g., Raj_1022

Deadline: within 28/11/2024

Solve all the problems:

1. Prove that in a Boolean algebra, $a + a'b = a + b$.
2. Using Boolean algebra, prove that $a + ab = a$.
3. Prove that in a Boolean algebra, $a + 1 = 1$ for all $a \in B$.
4. In any Boolean algebra, show that $a \cdot (a + b) = a$.
5. Prove that in a Boolean algebra, $a \cdot a = a$ for all $a \in B$.
6. Show that $a + a = a$ in a Boolean algebra.
7. Simplify the Boolean expression $(xy' + y'z + x'y)\,x$ and write it in Disjunctive Normal Form.
8. Find the Disjunctive Normal Form of the Boolean expression $(x'y + yz') \cdot z$.