

**Question Number 5**

- In your favorite programming language verify the 3-round integral distinguisher on AES.
- Your code should verify the properties after every round displaying necessary messages.
- You should have sub-routines like isAll, isConstant, isBalanced.
- Also the constant part of the 256 states should be randomly generated to demonstrate that it has no effect on the result.
- You don't need show anything in main assignment for this, just a few lines on how to test your code.

**Solution.**