

Note:

1. Assignment can be solved manually but use of software is allowed.
 2. If any software is used, kindly do not submit only the final output. Explain the solution in detail.
 3. Assumptions, if any should be mentioned clearly.
 4. Give appropriate reasoning for performing the statistical test used to arrive at the conclusion.
 5. Consideration will also be given to the proper interpretation of the result.
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Assignment – I

A company manufacturing rivets, wants to supply rivets to a new client, manufacturing concrete vibrators. Every concrete vibrator needs 6 rivets. Failure of any rivet is purely random and independent. Even if a couple of rivets fail, the vibrator is continued to be used. However, failure of more than 2 rivets results in stoppage of work as failed rivets are needed to be replaced. The client has agreed to test rivets on one concrete vibrator and run it continuously for 100 hours. Client has put a condition that during this period if more than 2 rivets fail, supplier would not get any order.

Considering the large requirement of the client, the manufacturer tested 850 sets of 6 rivets each, on similar vibrators at his own factory. The failure data was as under:

Number of rivets (in a set) failing during 100 hours of testing	Number of sets
0	159
1	304
2	240
3	109
4	30
5	4
6	4

If the manufacturer wishes the probability of stoppage of work to be within 15%, analyse the above situation, and advice the manufacturer accordingly.

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