

Assignment 1

Dontha Aarthi-CS20BTECH11015

Download all python codes from

<https://github.com/Dontha-Aarthi/AI1103/blob/main/Assignment2/Codes/assignment2.py>

and latex-tikz codes from

<https://github.com/Dontha-Aarthi/AI1103/blob/main/Assignment2/main.tex>

1 GATE PROBLEM 43

If calls arrive at a telephone exchange such that the time of arrival of any call is independent of the time of arrival of earlier or future calls, the probability distribution function of the total number of calls in a fixed time interval will be

- (A) Poisson
- (B) Gaussian
- (C) Exponential
- (D) Gamma

2 SOLUTION

Given, time of arrival of any call is independent of the time of arrival of earlier or future calls.

And the number of calls in a fixed time interval is a discrete random variable.

⇒ Which means each event is independent of all other events.

Probability distribution function should follow discrete probability distribution, which is satisfied by **option A**, i.e, **Poisson distribution**.

Option B,C,D are continuous probability distribution functions.

Answer is **Option A: Poisson Distribution**