

# Assignment-4

Sushma - CS20BTECH11051

Download all python codes from

[https://github.com/Sushma-AI1103/  
AI1103\\_Assingment\\_4/blob/main/  
assingment\\_4.py](https://github.com/Sushma-AI1103/AI1103_Assingment_4/blob/main/assingment_4.py)

## 1 PROBLEM

Gate ME 1993 - Ques-(7.1) If 20 percent of managers are technocrats, the probability that a random committee of 5 managers consists of exactly 2 technocrats is:

- 1) 0.2048
- 2) 0.4000
- 3) 0.4096
- 4) 0.9421

## 2 SOLUTION

Let  $X$  be the number of success i.e number of technocrats managers.

$$n = 5; \quad (2.0.1)$$

$$p = \frac{20}{100} = 0.2 \quad (2.0.2)$$

$$q = 0.8 \quad (2.0.3)$$

$$r = 2 \quad (2.0.4)$$

Probability function for binomial distribution is defined as:

$$\Pr(X = r) = {}^nC_r p^r q^{n-r} \quad (2.0.5)$$

$\therefore$

$$\Pr(X = 2) = {}^5C_2 (.2)^2 (.8)^3 \quad (2.0.6)$$

$$= 10 \cdot 0.04 \cdot 0.512 \quad (2.0.7)$$

$$= 0.2048 \quad (2.0.8)$$

hence, answer will be (A).