During a drug trail for a new antibiotic, 45% of the people who were given the drug experienced dizziness. Assume a sample size of 15 patients..
a) FInd the probability that exactly 8 patients experienced dizziness.
B)FInd the probability that less than 6 patients experienced dizziness.
C)FInd the probability that at least 7 patients experienced dizziness.
D)Find the probability that at most 4 patients did NOT experience dizziness..

Solution

A) Find the probability that exactly 8 patients experienced dizziness.

X ~ Binomial(15, 0.45)

$$P(X = 8) = \binom{15}{8}(0.45)^8(0.55)^{15-8} = 0.16474$$

B) Find the probability that less than 6 patients experienced dizziness.

X ~ Binomial(15, 0.45)

$$P(X < 6) = \sum_{x=0}^{5} \binom{15}{x}(0.45)^x(0.55)^{15-x} = 0.26076$$

C) Find the probability that at least 7 patients experienced dizziness.

X ~ Binomial(15, 0.45)

$$P(X \geq 7) = \sum_{x=7}^{15} \binom{15}{x}(0.45)^x(0.55)^{15-x} = 0.54784$$

D) Find the probability that at most 4 patients did NOT experience dizziness.

X ~ Binomial(15, 0.55)

$$P(X \leq 4) = \sum_{x=0}^{4} \binom{15}{x}(0.55)^x(0.45)^{15-x} = 0.02547$$

Answer: A) 0.16474;B) 0.26076 ;C) 0.54784;D) 0.02547.