39. A company prices its hurricane insurance using the following assumptions:

(i) In any calendar year, there can be at most one hurricane.

(ii) In any calendar year, the probability of a hurricane is 0.05.

(iii) The number of hurricanes in any calendar year is independent of the number of hurricanes in any other calendar year.

Using the company’s assumptions, calculate the probability that there are fewer than 3 hurricanes in a 20-year period.

(A) 0.06  
(B) 0.19  
(C) 0.38  
(D) 0.62  
(E) 0.92

40. An insurance policy pays for a random loss \( X \) subject to a deductible of \( C \), where \( 0 < C < 1 \). The loss amount is modeled as a continuous random variable with density function

\[
f(x) = \begin{cases} 
2x & \text{for } 0 < x < 1 \\
0 & \text{otherwise.}
\end{cases}
\]

Given a random loss \( X \), the probability that the insurance payment is less than 0.5 is equal to 0.64.