38) An insurance company has a variable annuity linked to the S&P 500 index. A guaranteed minimum death benefit (GMDB) specifies the beneficiary will receive the greater of the account value and the original amount invested, if the policyholder dies within the first three years of the annuity contract. If the policyholder dies after three years, the beneficiary will receive the account value.

Out of every 1000 policies sold, the company expects 10 deaths in each of years one, two, and three. Thus they also expect that 970 will survive the first three years. Assume the deaths occur at the end of the year.

You are given the following at-the-money European call and put option prices, expressed as a percentage of the current value of the S&P 500 index.

Duration (years)	Call Price	Put Price
1	18.7%	15.8%
2	26.2%	20.6%
3	31.6%	23.4%

Calculate the expected value of the guarantee when the annuity is sold, expressed as a percentage of the original amount invested.

(A) 0.23%

(B) 0.32%

(C) 0.52%

(D) 0.60%

(E) 0.76%