**QUESTION 9 OF FINAL EXAM:**

Consider an offshore oil property with an estimated oil reserve of 50 million barrels of oil, where the present value of the development cost is $55 per barrel and the development lag is two years. The firm has the rights to exploit this reserve for the next 20 years, and the marginal value per barrel of oil is $45 per barrel currently (price per barrel - marginal cost per barrel).

Once developed, the net production revenue each year will be 5% of the value of the reserves. The riskless rate is 2%, and the variance is 0.03

Given this information, calculate the value of the oil reserve using the Black-Scholes pricing method.