Question 13 **(6 marks)**

Simon has $5000 that he wants to invest for a period of time without touching it.

(a) If he chooses to invest this money in an account earning compound interest at the rate of 6.5% per annum, determine the:

(i) value of his investment after three years, if interest is paid annually. (1 mark)

(ii) time required for him to double his investment, if interest is paid monthly. (2 marks)

(b) Simon is currently deciding between two options and wishes to compare them.

Option A: Invest the $5000 in an account earning compound interest at the rate of 5.5% per annum, with interest paid monthly.

Option B: Invest the $5000 in an account earning compound interest at the rate of 5.4% per annum, with interest paid daily.

He decides to calculate the effective annual rate of interest for each option, in order to compare the possible investments. He determines that Option A has an effective annual rate of interest of 5.64%, correct to two decimal places.

Calculate the effective annual rate of interest for Option B, correct to two decimal places, and hence decide on the better option for Simon. (3 marks)