Name: _____

Student ID: _____

Test 3

This test is graded out of 63 marks. No books, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. *(2 marks)*
Express the percent 0.3% as a fraction and as a decimal.

Question 2. *(4 marks)*
Evaluate the following to two decimal places:

1. $\sqrt[7]{4523}$
2. $(34643)^{\frac{5}{3}}$
3. $-(3)^{-1}$
4. $(2.89)^1$

Question 3. *(3 marks)*
Alexander invests \$6 500 in a bank account for 2 years and 5 months at 7% interest p.a. compounded monthly. What is the future value of Alexander's investment? How much interest does Alexander earn?

Question 4. *(6 marks)*
Henri wants to invest $65 000 in a savings bank account. He has two choices: Bank Double-Interest offers a savings account with an interest rate of 2.75% compounded monthly, Cookie Bank offers a savings account with interest rate of 3% compounded yearly. Suppose the investment period is 6 years and 6 months. Which bank should Henri choose? What is the difference in the amount of interest earned between the two banks?
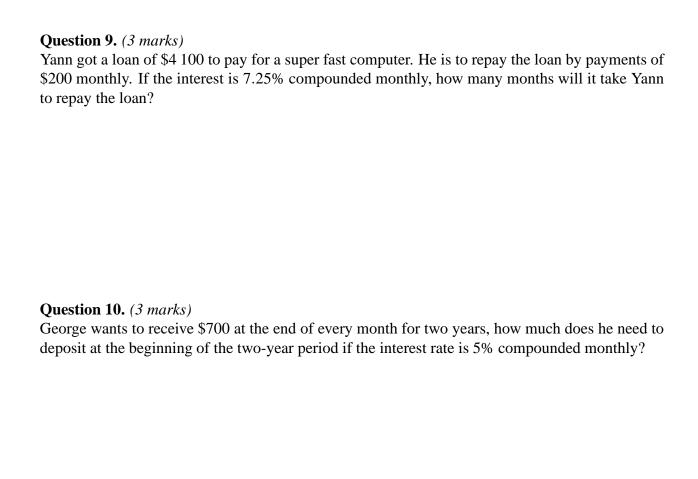
Question 5. *(6 marks)*
Marc wins the lottery and has the option of getting $2 000 000 now or $1 000 000 now and $1 200 000 in 15 years. Since Mark was a former AEC student he chose the right option. If money was worth 4.75% compounded monthly what did did Mark choose? By how much was his choice better in present value money?

Question 6. *(3 marks)*
What sum of money will accumulate to $5 300 over 4 years and 6 months if the money is worth 5.75% compounded quartely?

Question 7. *(3 marks)*
What effective rate is equivalent to a nominal rate of 3.75% compounded quartely?

Question 8. *(3 marks)*
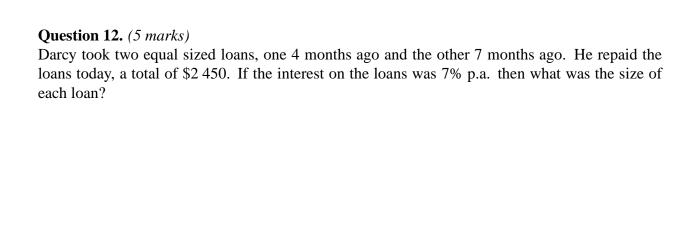Joe wants to invest in a savings account, he deposits $2 in his savings account every day for 20 years. What will be the balance of his savings account in 20 years if his savings account has a nominal interest rate of 2.75% compounded daily?

Question 9. *(3 marks)*
Yann got a loan of $4 100 to pay for a super fast computer. He is to repay the loan by payments of $200 monthly. If the interest is 7.25% compounded monthly, how many months will it take Yann to repay the loan?

Question 10. *(3 marks)*
George wants to receive $700 at the end of every month for two years, how much does he need to deposit at the beginning of the two-year period if the interest rate is 5% compounded monthly?

Question 11. *(3 marks)*
What deposit made at the end of each quarter for 15 years will accumulate to $25 000 at an interest rate of 7% compounded quartely?

Question 12. *(5 marks)*
Darcy took two equal sized loans, one 4 months ago and the other 7 months ago. He repaid the loans today, a total of $2 450. If the interest on the loans was 7% p.a. then what was the size of each loan?

Question 13. *(4 marks)*
The componenent cost to make an OGG Vorbis player is four-ninth of the total cost and labour is one-third of the component cost. If cost of labour is $11 what is the total cost of the MP3/OGG Vorbis player.

Question 14. *(5 marks)*
A store buys a sofa for $2 500 less a trade discount of 35%, 25%, 15%. What is the selling price of the sofa if the store expenses are 25% of the selling price and require a profit of 15% on the selling price. What is the selling price? What is the markup based on the cost?

Question 16. *(3 marks)*
Bobby received $55.01 interest for a deposit of $6 200 invested for a period of 120 days. What was the rate of interest p.a.?

Question 17. *(2 marks)*
Compute the future value of $2 123 over seven months at $3\frac{3}{4}$% p.a.?

Question 18. *(5 marks)*
Ron borrowed $20 000 today and is to repay the loan in two equal payments, one in seven months and the other in nine months. If the interest rate is 6.5% p.a. What is the size of the equal payments?

Bonus Question *(3 marks)*
Derive the formula for future value of a simple ordinary annuity from a geometric progression.