1. (a) In city Y, house prices have increased by 3% each year for the last three years. If a house cost USD 180 000 three years ago, calculate, to the nearest dollar, its value today.

(b) In city Z, a house worth USD 100 000 three years ago is now valued at USD 119 102. Calculate the yearly percentage increase in the value of this house.

(Total 4 marks)

2. The rate of inflation from the beginning of 1995 has been 4.5% per year.

(a) A loaf of bread cost $1.70 on January 1, 1996. What did it cost on January 1, 1999?

(b) A car cost $40 000 on January 1, 1999. What did it cost on January 1, 1997? **(Give your answer to the nearest thousand dollars.)**

(Total 4 marks)

3. At what interest rate, compounded annually, would you need to invest $100 in order to have $125 in 2 years?

(Total 4 marks)

4. David invests 6000 Australian dollars (AUD) in a bank offering 6% interest compounded annually.

(a) Calculate the amount of money he has after 10 years.

(b) David then withdraws 5000 AUD to invest in another bank offering 8% interest compounded annually. Calculate the **total** amount he will have in both banks at the end of one more year. Give your answer correct to the nearest Australian dollar.

(Total 8 marks)

5. Two brothers Adam and Ben each inherit $6500. Adam invests his money in a bond that pays simple interest at a rate of 5% per annum. Ben invests his money in a bank that pays compound interest at a rate of 4.5% per annum.

(a) Calculate the value of **Adam's** investment at the end of 6 years.

(3)

(b) Calculate the value of **Ben's** investment at the end of 6 years. Give your answer **correct to 2 decimal places**.

(3)

(Total 6 marks)

6. Daniel wants to invest $25 000 for a total of three years. There are three investment options.

Option One pays simple interest at an annual rate of interest of 6 %.

Option Two pays compound interest at a nominal annual rate of interest of 5 %, compounded **annually**.

Option Three pays compound interest at a nominal annual rate of interest of 4.8 %, compounded **monthly**.

(a) Calculate the value of his investment at the end of the third year for each investment option, **correct to two decimal places**.

(8)

(b) Determine Daniel's best investment option.

(1)
(Total 9 marks)

7. Emma places €8000 in a bank account that pays a nominal interest rate of 5% per annum, compounded quarterly.

(a) Calculate the amount of money that Emma would have in her account after 15 years. Give your answer correct to the nearest Euro.

(3)

(b) After a period of time she decides to withdraw the money from this bank. There is €9058.17 in her account. Find the number of months that Emma had left her money in the account.

(3)
(Total 6 marks)

8. Eva invests USD2000 at a nominal annual interest rate of 8 % **compounded half-yearly**.

(a) Calculate the value of her investment after 5 years, correct to the nearest dollar.

(3)

Toni invests USD1500 at an annual interest rate of 7.8 % **compounded yearly**.

(b) Find the number of **complete** years it will take for his investment to double in value.

(3)
(Total 6 marks)

9. William invests \$1200 for 5 years at a rate of 3.75% compounded annually.

(a) Calculate the amount of money he has in total at the end of the 5 years.

(b) The interest rate then drops to 3.25%. If he continues to leave his money in the bank find how much it will be worth after a further 3 years.

(Total 6 marks)

10. On Vera's 18th birthday she was given an allowance from her parents. She was given the following choices.

Choice A \$100 every month of the year.
Choice B A fixed amount of \$1100 at the beginning of the year, to be invested at an interest rate of 12% per annum, compounded monthly.
Choice C \$75 the first month and an increase of \$5 every month thereafter.
Choice D \$80 the first month and an increase of 5% every month.

(a) Assuming that Vera does not spend any of her allowance during the year, calculate, for each of the choices, how much money she would have at the end of the year.

(8)

(b) Which of the choices do you think that Vera should choose? Give a reason for your answer.

(2)

(c) On her 19th birthday Vera invests \$1200 in a bank that pays interest at r% per annum compounded annually. Vera would like to buy a scooter costing \$1452 on her 21st birthday. What rate will the bank have to offer her to enable her to buy the scooter?

(4)

(Total 14 marks)