**Resource Free Section – 8 min 1 min reading time [8 marks]**

**1. [2 marks: 1, 1]**

Given that calculate:

a) S, when D = 100 and T = 4

b) S, when D = 2 and T = 8

**2. [3 marks]**

|  |  |  |  |
| --- | --- | --- | --- |
| Description: Description: S:\AdminShared\All Staff\1 College Logo's\Baldivis_Logo_colour.jpgName: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Date: *\_\_\_\_\_\_\_\_\_\_\_* |
|  | **Year 11 Applications**  **Test 2, 2018**  **Topics – Substitution and Formulas, Simple and Compound Interest** | | 40  = % |
| **Total Time:** | ***42*** *minutes* |  | |
| **Total Reading:** | *2**minutes* |
| **Total Working:** | *40 minutes* |
| **Weighting:** | *3% of the year, 6% of the semester.* |
| **Equipment:** | *SCSA Formula Sheet; 1 page notes (A4 one side,* ***Unfolded****), CASIO ClassPad; Scientific Calculator* | | |

Determine the total to be repaid on a loan of $20,000 invested at 5% per annum simple interest for 2 years.

**3. [3 marks]**

Write down the calculation you would use to calculate the value of an investment of $6,700 after 8 years invested at 6.4% compounded bi-annually. (You do not need to solve it.)

**Resource Section – 33 min 2 min reading time [32 marks]**

**4. [5 marks: 2, 3]**

a) How much is owed after 3 years if $10,000 is borrowed at 8% per annum compound interest, with the interest compounded annually (assume no repayments being made before the end of the 3 years).

b) What would be the difference in the amount owed from part a) if the interest had been compounded quarterly instead of annually?

**5. [2 marks]**

How much simple interest is due after 35 days for an investment of $24000 invested at 5% per annum. (Give your answer to the nearest cent)

**6. [2 marks]**

Eliza invested money in a superannuation fund that paid 6.5% p.a. compounded monthly. How much did she invest if her investment grew to $72,500 in 10 years? Answer to the nearest ten dollars.

**7. [3 marks]**

A pair of shoes cost $38. What was the price of the shoes 5 years ago if the average inflation rate was 3.7% per annum. Give your answer to the nearest cent.

**8. [8 marks: 2, 2, 4 marks]**

The following is Karens’s bank account statement from August to September.

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Debit** | **Credit** | **Balance** |
| Starting Balance |  |  | $740 |
| 3 Aug |  | $560 | $1,300 |
| 11 Aug | $60 |  | $1,240 |
| 12 Aug |  | $40 |  |
| 5 Sept | $100 |  |  |
| 17 Sept | $600 |  |  |
| 21 Sept |  | $520 |  |

**a** Complete the balance column.

**b** What is the minimum monthly balance for:

**i.** August (31 days)

**ii.** September (30 days)

**c** Calculate the total interest earned for both months if the interest paid is 4.5% p.a. on the minimum monthly balance.

**9. [2 marks]**

The sum of n terms in an arithmetic sequence is defined by the formula .

Given that n=20, a = 5, and d= 8, find the value of S.

**10. [3 marks]**

A microwave that costs $500, depreciates at 10% p.a. After how many full years will it take for the microwave to cost less than $350

**11. [7 marks: 2, 2, 3]**

Josh has an annual salary of $55,000. Inflation is rising on average 2.6% p.a. His Salary is rising at the same rate to keep pace with inflation. Josh wants to calculate what his salary will be in 3 years time so he performs the following calculations:

2.6% of $55,000 = 0.026 × 55000

= $1,430

Salary in 3 years = $55,000 + $1,430 + $1,430 + $1,430

= $59,290

a. Explain why this is incorrect

b. Calculate Josh’s salary in 3 years.

c. Using the same inflation rate predict Josh’s salary in 10 years, and comment on the accuracy of this prediction.

* End of Test -