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|---------------------------------------------------|---------------------------------------------------------|
| <b>FACULTY/COLLEGE</b>                            | College of Business and Economics                       |
| <b>SCHOOL</b>                                     | School of Accounting                                    |
| <b>DEPARTMENT</b>                                 | Commercial Accounting                                   |
| <b>CAMPUS(ES)</b>                                 | SWC                                                     |
| <b>MODULE NAME</b>                                | Cost and Financial Management                           |
| <b>MODULE CODE</b>                                | CFM11B1                                                 |
| <b>SEMESTER</b>                                   | Second                                                  |
| <b>ASSESSMENT OPPORTUNITY,<br/>MONTH AND YEAR</b> | Final Summative Assessment Opportunity<br>November 2019 |

|                        |                                                    |                    |                |
|------------------------|----------------------------------------------------|--------------------|----------------|
| <b>ASSESSMENT DATE</b> | 14 November 2019                                   | <b>SESSION</b>     | 08:30 to 11:30 |
| <b>ASSESSOR(S)</b>     | Ms. P. Ramutumbu and Ms. L. Pelcher, Mr. E. Gyhoot |                    |                |
| <b>MODERATOR(S)</b>    | Mr. D. du Plessis                                  |                    |                |
| <b>DURATION</b>        | 3 hours (180 min)                                  | <b>TOTAL MARKS</b> | 100            |

|                                                                 |    |
|-----------------------------------------------------------------|----|
| <b>NUMBER OF PAGES OF QUESTION PAPER (Including cover page)</b> | 18 |
|-----------------------------------------------------------------|----|

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**INFORMATION/INSTRUCTIONS:**

- This is a closed-book assessment.
  - There are 6 questions. **Answer question 1 to question 6 (compulsory).** (In total you must answer 6 questions).
  - Read the questions carefully and answer only what is required.
  - Number your answers clearly and correctly as per the question paper.
  - Write neatly and legibly on both sides of the paper in the answer book, starting on the first page.
  - Answer all questions. Show all formulae, calculations and workings clearly.
  - Please start each question on a new page.
  - Silent, non-programmable calculators may be used.
  - Where applicable, round all calculations to **two decimal** places, unless stipulated otherwise.
  - Indicate your **INDEX NUMBER** on the front cover of your script.
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**QUESTION 1****(10 MARKS)**

- 1.1 Below is an extract from the CEO's report published in the 2019 integrated report of Mr Price Group Ltd:

**People**

Maintain an energised environment with empowered and motivated people.

**Headline earnings per share grew 6.2%.**

Capital allocation will be applied to the most promising opportunities to ensure appropriate returns are achieved over the short, medium and long-term.

**Required:**

- 1.1.1 What is the main objective of a financial manager? **(1)**
- 1.1.2 Write down the phrase (from the extract) that refers to the main objective of a financial manager? **(1)**
- 1.1.3 There are two main decisions that a financial manager must make. Which decision is referred to in the extract? **(1)**
- 1.2 Write down one corresponding difference between financial accounting and financial management. Use the headings: **Financial Accounting** and **Financial Management**. **(2)**
- 1.3 What does the inverse of the price-earnings (PE) ratio calculate?  
 $1 / PE = ?$  **(1)**

- 1.4 The figure below is extracted from the 2019 integrated report of Mr Price Group Ltd:



**Shareholders**

Account for the ownership of 258m shares. Shareholders are 93% institutional and 7% retail. The shareholder base is split almost evenly between local and offshore.



**Government & Community**

We work closely with key government bodies to ensure that we maximise our impact on the communities within which we operate.

**Required:**

- 1.4.1 Categorise each stakeholder listed in the extract. (3)
- 1.4.2 Which one of the above can also pose an external threat to the financial manager? (1)

**QUESTION 2****(20 MARKS)**

- 2.1 A fellow student started making the following summary of the differences between bonds and equity:

|                                        | <b>Bonds</b> | <b>Equity</b> |
|----------------------------------------|--------------|---------------|
| <b>Provides guaranteed income?</b>     |              |               |
| <b>Participates in capital growth?</b> |              |               |
| <b>Fixed term / set maturity date?</b> |              |               |

**Required:**

- 2.1.1 Copy the table above in your answer book and fill in the blanks by writing Yes or No in the correct column for each type of instrument. **(3)**
- 2.1.2 Assume a company has a cash deficit which they expect to last between 6 and 11 months. On which financial market should they try to obtain the funds they need? **(1)**

- 2.2 The graph below represents movement on the NASDAQ Composite Index for the period 2015-2018:



From the graph, it reads that the Nasdaq was trading at 8109 points on 1 Jul 2018. A year earlier, on 1 Jul 2017, it was trading at 6305 points.

**Required:**

- 2.2.1 What broad market trend is represented by the graph? **(1)**
- 2.2.2 By how many points did the NASDAQ Composite Index change from 1 July 2017 to 1 July 2018? **(1)**

- 2.2.3 Is the information on the graph applicable to each individual share listed on the NASDAQ? Explain your answer. (1)
- 2.2.4 Is the following statement true or false?  
 “An index’s primary purpose is to reflect the aggregate movement of the market.” (1)
- 2.2.5 Name two indices that can be found on the JSE. (2)

- 2.3 The following extract from the JSE Ltd report appeared in a recent newspaper:

| Company          | Close<br>(cents) | Day<br>move<br>(cents) | Volume<br>(000) | 12m<br>High  | 12m<br>Low   | DY         | PE<br>Ratio |
|------------------|------------------|------------------------|-----------------|--------------|--------------|------------|-------------|
| <b>MASSMART</b>  | <b>5011</b>      | <b>25</b>              | <b>6653</b>     | <b>6158</b>  | <b>4299</b>  | <b>3.3</b> | <b>11.9</b> |
| <b>MR PRICE</b>  | <b>18190</b>     | <b>-29</b>             | <b>9489</b>     | <b>18869</b> | <b>17600</b> | <b>3.2</b> | <b>15.5</b> |
| <b>TRUWORTHS</b> | <b>6382</b>      | <b>132</b>             | <b>16341</b>    | <b>6616</b>  | <b>5997</b>  | <b>5.1</b> | <b>10.4</b> |

**Formulae:**

$$PE = MPS \div EPS$$

$$EY = 1 / PE$$

$$DY = DPS \div MPS$$

Please answer the following questions based on the above extract.

**Required:**

- 2.3.1 Calculate the earnings yield for Mr Price. (1)
- 2.3.2 Calculate the opening price for Massmart. (1)
- 2.3.3 Calculate the return shareholders earned if they purchased shares in Truworths for 6597c exactly one year ago and held on to them for the entire year. (3)
- 2.3.4 Which share in this extract was traded the most? (1)
- 2.3.5 Which retailer does the market have the most confidence in? (1)
- 2.3.6 Why is the information for all the companies printed in bold? (1)
- 2.3.7 Provide one possible reason why all the companies have a dividend yield. (1)
- 2.3.8 Why are there no asterisks \* next to any of the shares in the report? (1)

**QUESTION 3****(10 MARKS)****Instruction: Please round off to *four* decimals for question 3.**

3.1 What would you call a company that earn strong currencies while the home currency is the weaker currency? **(1)**

3.2 Name three currencies that can be considered as the most important currencies in the world. **(3)**

3.3

|     | USD    | EUR    | ZAR     | CHF    |
|-----|--------|--------|---------|--------|
| USD | 1      | 0.9015 | 14.6903 | 0.9859 |
| EUR | 1.1093 | 1      | 16.2849 | 1.0937 |
| ZAR | 0.0681 | 0.0614 | 1       | 0.0672 |
| CHF | 1.0143 | 0.9144 | 14.8903 | 1      |

**Required:**

3.3.1 Indicate the direct quote of the ZAR/CHF exchange rate **(1)**

3.3.2 Would you rather have USD 40 or ZAR 500? Show all your calculations. **(2)**

3.4

|                | 1 ZAR  | 1 foreign currency |
|----------------|--------|--------------------|
| Botswana Pula  | 0.7323 | 1.3654             |
| Brazilian Real | 0.2614 | 3.8244             |
| Euro           | 0.0614 | 16.2843            |
| Indian Rupee   | 4.7399 | 0.2109             |

**Required:**

3.4.1 Indicate the indirect quote of the ZAR/Brazilian Real. **(1)**

3.4.2 How much EUR can you buy for R380? **(1)**

3.5 Bongani is travelling to America and needs US dollars.  
The bank has provided him with the following rates:  
\$1 = 15.2950 / 15.3158

**Required:**

Indicate the bid rate to Bongani. **(1)**

**QUESTION 4****(20 MARKS)**

4.1 Explain the relationship between risk and return. (2)

4.2 Define “financial risk”. (2)

4.3

| <b>Instrument</b>            | <b>Expected Return</b> | <b>Standard deviation</b> |
|------------------------------|------------------------|---------------------------|
| Ordinary shares in Meter Ltd | 18%                    | 6.40%                     |
| Ordinary shares in Lamb Ltd. | 16%                    | 7.20%                     |

**Required:**

4.3.1 Calculate the coefficient of variation for Meter Ltd and Lamb Ltd. Show the formula. (3)

4.3.2 Based on your calculations above, which company should the shareholders choose to invest in? Motivate your answer. (2)

4.4 Ms Madonsela’s retirement savings is invested in two financial instruments. 60% is invested in government bonds and 40% in shares. The following returns per financial asset are provided to you:

|               | <b>Expected Return:<br/>Government Bonds</b> | <b>Expected Return:<br/>Shares</b> |
|---------------|----------------------------------------------|------------------------------------|
| <b>Year 1</b> | 6%                                           | 16%                                |
| <b>Year 2</b> | 6.5%                                         | 14.5%                              |
| <b>Year 3</b> | 6.9%                                         | 13%                                |

**Required:**

4.4.1 Calculate the average expected return of the portfolio. (5)

4.4.2 Why would one invest in a portfolio rather than in one financial instrument? (1)

4.4.3 Name the concept of your explanation in 4.4.2. (1)

- 4.5 Mr C Kolbe wants to invest money in Rugby Ltd. He is not sure what return he can expect from his investment, but has some information about possible returns. There is a 20% probability that the return can be 38%, a 50% probability that the return will be 33% and a 30% probability that the return will be 20%.

**Required:**

Calculate the expected return that Mr Kolbe can expect from Rugby Ltd. Show all your calculations.

**(4)**



**QUESTION 5****(20 MARKS)**

- 5.1 Mpho has moved into her own place. She now needs money to buy furniture and appliances. She does not have any savings and will have to get a personal loan from the bank. The bank is willing to give her R100 000 for a 2 year period at an interest rate of 10% per annum.

**Required:**

Calculate the amount of money that she will need to pay every year towards paying off the personal loan. Use your financial calculator and show all of your workings.

**(4)**

- 5.2 Minenhle wants to set up a bursary fund for one student per year that wants to study Fine Arts at the University of Cape Town. At the beginning of every year, the total bursary amount will be R100 000. The fund can earn a return of 7% per annum.

**Required:**

How much does Minenhle need to provide now to ensure that perpetual payments can be made towards the bursary fund? Use the relevant formula and show all of your workings.

**(2)**

- 5.3 Lerato has worked for three employers over the past 10 years and has received various lump sums each time she resigned. She always resigned on the 31<sup>st</sup> of December. She invested each lump sum in the same investment account. She has now decided to start her own business and wants to use the money she invested. She earned a return of 11% on her investment.

| Year | Lump sum | Resigned from Employer |
|------|----------|------------------------|
| 2010 | R100 000 | ABSA                   |
| 2014 | R150 000 | NEDBANK                |
| 2018 | R200 000 | STANDARD BANK          |

**Required:**

Use the interest factor tables to calculate the value of her investment at the end of 2019. Assume that the amounts were received at the end of the specified years.

**(6)**

- 5.4 Karabo is an entrepreneur. She has many ideas and expects to earn the following cash inflows from successfully implementing the plans in her business. Karabo provides you with the following expected annual cash inflows over the next three years:

| Year | Cash flow |
|------|-----------|
| 2020 | 85 000    |
| 2021 | 92 000    |
| 2022 | 107 000   |

**Required:**

Calculate the average annual growth rate associated with the cash flow stream. Use your financial calculator and show all of your workings.

**(4)**

- 5.5 Tshepiso won R5 million in the lotto and needs to decide how to invest her winnings. She wants to receive a steady annual cash flow of R500 000 at the beginning of each year for the next 35 years.

**Required:**

Calculate the deposit that Tshepiso needs to invest today at 6% interest per annum. Use your financial calculator and show all of your workings.

**(4)**

**QUESTION 6****(20 MARKS)**

- 6.1 Apple Chief Executive Officer, Tim Cook has voiced concerns about chief competitor Samsung Electronics getting an edge because its products, unlike Apple's, won't be subject to tariffs when imported by the US due to the current US China trade wars. Apple will be hit by tariffs because it makes the majority of its devices in China before importing them to the US and other parts of the world. Apple now needs to pay particular attention to its capital structure and the cost of its funding in order to remain competitive in this challenging trading environment.

Apple Inc has ordinary shares in issue. US government bonds are currently yielding a return of 7.5% at present. Due to the recent United States and China trade wars, the risk in global markets is perceived as high and a market risk premium of 10% is considered appropriate. The company has a fairly high business risk and a low financial risk. A further premium of 5% is considered appropriate.

The redeemable preference shares of R100 in issue pay an annual dividend of R8 per share. The preference share price is currently at R96 per share. The shares are redeemable in 4 years' time at par.

A loan of R100 000 is under consideration from a finance provider. This is the price at which the loan can be fully repaid today. The loan is repayable in 3 installments of R40 000 each, at the end of each year. The tax rate is 28%.

**Required:**

- 6.1.1 Calculate the cost of equity. (2)
- 6.1.2 Calculate the cost of preference shares (5)
- 6.1.3 Calculate the cost of debt. (5)

- 6.2 The capital structure for Samsung Ltd is currently as follows: Equity: 100 000 shares valued at R5 per share. Equity shareholders require 18% return for similar shares. 12% redeemable preference shares: 200 000 valued at R2 each. The preference shareholders require 14% return on similar investments. Debt: R100 000 at a fixed interest of 7.2% after tax. Samsung wants to launch a new product. The projected returns from the project are 20%.

**Required:**

- 6.2.1 Calculate the current weighted average cost of capital. (6)
- 6.2.2 Should Samsung invest in the project? Provide a motivation for your answer. (2)

**[TOTAL = 100]**

## APPENDIX

### Tables:

$$\begin{aligned}
 FV_n &= PV_0 \times FVIF_{i,n} \\
 PV_n &= FV_n \times PVIF_{i,n} \\
 FVA_n &= PMT \times FVIFA_{i,n} \\
 PVA_0 &= PMT \times PVIFA_{i,n} \\
 FVAD_0 &= (PMT \times FVIFA_{i,n}) \times (1 + i) \\
 PVAD_0 &= (PMT \times PVIFA_{i,n} \times (1 + i)
 \end{aligned}$$

### Formulas:

|                                                                                                      |
|------------------------------------------------------------------------------------------------------|
| $R = \sum (R_i)(P_i)$                                                                                |
| $\sigma = \sqrt{\sum_{i=1}^n (R_i - R)^2 \times P_i}$                                                |
| $CV = \frac{\sigma}{R}$                                                                              |
| $K_p = (W_1 \times K_1) + (W_2 \times K_2) + \dots + (W_n \times K_n)$                               |
| $R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}} \times \frac{100}{1}$                                     |
| $FV_n = PV_0 \times (1 + i)^n$ $PV_0 = \frac{FV_n}{(1 + i)^n} \quad PV_0 = FV_n \times (1 + i)^{-n}$ |

$$FVA = PMT \times \left[ \frac{(1+i)^n - 1}{i} \right]$$

$$PVA = PMT \times \left[ \frac{1 - (1+i)^{-n}}{i} \right]$$

$$PV_{\text{perp}} = \frac{PMT}{i}$$

$$EAR = \left( 1 + \frac{i}{m} \right)^m - 1$$

$$FV = PV_0 \times \left( 1 + \frac{i}{m} \right)^{m \times n}$$

**Table 1: Future value of R1 at the end of  $n$  periods**

| $n$ | 0%     | 1%     | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%      | 9%      | 10%     | 11%     | 12%     | 13%     | 14%     | 15%     |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1   | 1.0000 | 1.0100 | 1.0200 | 1.0300 | 1.0400 | 1.0500 | 1.0600 | 1.0700 | 1.0800  | 1.0900  | 1.1000  | 1.1100  | 1.1200  | 1.1300  | 1.1400  | 1.1500  |
| 2   | 1.0000 | 1.0201 | 1.0404 | 1.0609 | 1.0816 | 1.1025 | 1.1236 | 1.1449 | 1.1664  | 1.1881  | 1.2100  | 1.2321  | 1.2544  | 1.2769  | 1.2996  | 1.3225  |
| 3   | 1.0000 | 1.0303 | 1.0612 | 1.0927 | 1.1249 | 1.1576 | 1.1910 | 1.2250 | 1.2597  | 1.2950  | 1.3310  | 1.3676  | 1.4049  | 1.4429  | 1.4815  | 1.5209  |
| 4   | 1.0000 | 1.0406 | 1.0824 | 1.1255 | 1.1699 | 1.2155 | 1.2625 | 1.3108 | 1.3605  | 1.4116  | 1.4641  | 1.5181  | 1.5735  | 1.6305  | 1.6890  | 1.7490  |
| 5   | 1.0000 | 1.0510 | 1.1041 | 1.1593 | 1.2167 | 1.2763 | 1.3382 | 1.4026 | 1.4693  | 1.5386  | 1.6105  | 1.6851  | 1.7623  | 1.8424  | 1.9254  | 2.0114  |
| 6   | 1.0000 | 1.0615 | 1.1262 | 1.1941 | 1.2653 | 1.3401 | 1.4185 | 1.5007 | 1.5869  | 1.6771  | 1.7716  | 1.8704  | 1.9738  | 2.0820  | 2.1950  | 2.3131  |
| 7   | 1.0000 | 1.0721 | 1.1487 | 1.2299 | 1.3159 | 1.4071 | 1.5036 | 1.6058 | 1.7138  | 1.8280  | 1.9487  | 2.0762  | 2.2107  | 2.3526  | 2.5023  | 2.6600  |
| 8   | 1.0000 | 1.0829 | 1.1717 | 1.2668 | 1.3686 | 1.4775 | 1.5938 | 1.7182 | 1.8509  | 1.9926  | 2.1436  | 2.3045  | 2.4760  | 2.6584  | 2.8526  | 3.0590  |
| 9   | 1.0000 | 1.0937 | 1.1951 | 1.3048 | 1.4233 | 1.5513 | 1.6895 | 1.8385 | 1.9990  | 2.1719  | 2.3579  | 2.5580  | 2.7731  | 3.0040  | 3.2519  | 3.5179  |
| 10  | 1.0000 | 1.1046 | 1.2190 | 1.3439 | 1.4802 | 1.6289 | 1.7908 | 1.9672 | 2.1589  | 2.3674  | 2.5937  | 2.8394  | 3.1058  | 3.3946  | 3.7072  | 4.0456  |
| 11  | 1.0000 | 1.1157 | 1.2434 | 1.3842 | 1.5395 | 1.7103 | 1.8983 | 2.1049 | 2.3316  | 2.5804  | 2.8531  | 3.1518  | 3.4785  | 3.8359  | 4.2262  | 4.6524  |
| 12  | 1.0000 | 1.1268 | 1.2682 | 1.4258 | 1.6010 | 1.7959 | 2.0122 | 2.2522 | 2.5182  | 2.8127  | 3.1384  | 3.4985  | 3.8960  | 4.3345  | 4.8179  | 5.3503  |
| 13  | 1.0000 | 1.1381 | 1.2936 | 1.4685 | 1.6651 | 1.8856 | 2.1329 | 2.4098 | 2.7196  | 3.0658  | 3.4523  | 3.8833  | 4.3635  | 4.8980  | 5.4924  | 6.1528  |
| 14  | 1.0000 | 1.1495 | 1.3195 | 1.5126 | 1.7317 | 1.9799 | 2.2609 | 2.5785 | 2.9372  | 3.3417  | 3.7975  | 4.3104  | 4.8871  | 5.5348  | 6.2613  | 7.0757  |
| 15  | 1.0000 | 1.1610 | 1.3459 | 1.5580 | 1.8009 | 2.0789 | 2.3966 | 2.7590 | 3.1722  | 3.6425  | 4.1772  | 4.7846  | 5.4736  | 6.2543  | 7.1379  | 8.1371  |
| 16  | 1.0000 | 1.1726 | 1.3728 | 1.6047 | 1.8730 | 2.1829 | 2.5404 | 2.9522 | 3.4259  | 3.9703  | 4.5950  | 5.3109  | 6.1304  | 7.0673  | 8.1372  | 9.3576  |
| 17  | 1.0000 | 1.1843 | 1.4002 | 1.6528 | 1.9479 | 2.2920 | 2.6928 | 3.1588 | 3.7000  | 4.3276  | 5.0545  | 5.8951  | 6.8660  | 7.9861  | 9.2765  | 10.7613 |
| 18  | 1.0000 | 1.1961 | 1.4282 | 1.7024 | 2.0258 | 2.4066 | 2.8543 | 3.3799 | 3.9960  | 4.7171  | 5.5599  | 6.5436  | 7.6900  | 9.0243  | 10.5752 | 12.3755 |
| 19  | 1.0000 | 1.2081 | 1.4568 | 1.7535 | 2.1068 | 2.5270 | 3.0256 | 3.6165 | 4.3157  | 5.1417  | 6.1159  | 7.2633  | 8.6128  | 10.1974 | 12.0557 | 14.2318 |
| 20  | 1.0000 | 1.2202 | 1.4859 | 1.8061 | 2.1911 | 2.6533 | 3.2071 | 3.8697 | 4.6610  | 5.6044  | 6.7275  | 8.0623  | 9.6463  | 11.5231 | 13.7435 | 16.3665 |
| 21  | 1.0000 | 1.2324 | 1.5157 | 1.8603 | 2.2788 | 2.7860 | 3.3996 | 4.1406 | 5.0338  | 6.1088  | 7.4002  | 8.9492  | 10.8038 | 13.0211 | 15.6676 | 18.8215 |
| 22  | 1.0000 | 1.2447 | 1.5460 | 1.9161 | 2.3699 | 2.9253 | 3.6035 | 4.4304 | 5.4365  | 6.6586  | 8.1403  | 9.9336  | 12.1003 | 14.7138 | 17.8610 | 21.6447 |
| 23  | 1.0000 | 1.2572 | 1.5769 | 1.9736 | 2.4647 | 3.0715 | 3.8197 | 4.7405 | 5.8715  | 7.2579  | 8.9543  | 11.0263 | 13.5523 | 16.6266 | 20.3616 | 24.8915 |
| 24  | 1.0000 | 1.2697 | 1.6084 | 2.0328 | 2.5633 | 3.2251 | 4.0489 | 5.0724 | 6.3412  | 7.9111  | 9.8497  | 12.2392 | 15.1786 | 18.7881 | 23.2122 | 28.6252 |
| 25  | 1.0000 | 1.2824 | 1.6406 | 2.0938 | 2.6658 | 3.3864 | 4.2919 | 5.4274 | 6.8485  | 8.6231  | 10.8347 | 13.5855 | 17.0001 | 21.2305 | 26.4619 | 32.9190 |
| 26  | 1.0000 | 1.2953 | 1.6734 | 2.1566 | 2.7725 | 3.5557 | 4.5494 | 5.8074 | 7.3964  | 9.3992  | 11.9182 | 15.0799 | 19.0401 | 23.9905 | 30.1666 | 37.8568 |
| 27  | 1.0000 | 1.3082 | 1.7069 | 2.2213 | 2.8834 | 3.7335 | 4.8223 | 6.2139 | 7.9881  | 10.2451 | 13.1100 | 16.7386 | 21.3249 | 27.1093 | 34.3899 | 43.5353 |
| 28  | 1.0000 | 1.3213 | 1.7410 | 2.2879 | 2.9987 | 3.9201 | 5.1117 | 6.6488 | 8.6271  | 11.1671 | 14.4210 | 18.5799 | 23.8839 | 30.6335 | 39.2045 | 50.0656 |
| 29  | 1.0000 | 1.3345 | 1.7758 | 2.3566 | 3.1187 | 4.1161 | 5.4184 | 7.1143 | 9.3173  | 12.1722 | 15.8631 | 20.6237 | 26.7499 | 34.6158 | 44.6931 | 57.5755 |
| 30  | 1.0000 | 1.3478 | 1.8114 | 2.4273 | 3.2434 | 4.3219 | 5.7435 | 7.6123 | 10.0627 | 13.2677 | 17.4494 | 22.8923 | 29.9599 | 39.1159 | 50.9502 | 66.2118 |

**Table 2: Present value of R1 at the end of  $n$  periods**

| $n$ | 0%     | 1%     | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%     | 9%     | 10%    | 11%    | 12%    | 13%    | 14%    | 15%    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1   | 1.0000 | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.9009 | 0.8929 | 0.8850 | 0.8772 | 0.8696 |
| 2   | 1.0000 | 0.9803 | 0.9612 | 0.9426 | 0.9246 | 0.9070 | 0.8900 | 0.8734 | 0.8573 | 0.8417 | 0.8264 | 0.8116 | 0.7972 | 0.7831 | 0.7695 | 0.7561 |
| 3   | 1.0000 | 0.9706 | 0.9423 | 0.9151 | 0.8890 | 0.8638 | 0.8396 | 0.8163 | 0.7938 | 0.7722 | 0.7513 | 0.7312 | 0.7118 | 0.6931 | 0.6750 | 0.6575 |
| 4   | 1.0000 | 0.9610 | 0.9238 | 0.8885 | 0.8548 | 0.8227 | 0.7921 | 0.7629 | 0.7350 | 0.7084 | 0.6830 | 0.6587 | 0.6355 | 0.6133 | 0.5921 | 0.5718 |
| 5   | 1.0000 | 0.9515 | 0.9057 | 0.8626 | 0.8219 | 0.7835 | 0.7473 | 0.7130 | 0.6806 | 0.6499 | 0.6209 | 0.5935 | 0.5674 | 0.5428 | 0.5194 | 0.4972 |
| 6   | 1.0000 | 0.9420 | 0.8880 | 0.8375 | 0.7903 | 0.7462 | 0.7050 | 0.6663 | 0.6302 | 0.5963 | 0.5645 | 0.5346 | 0.5066 | 0.4803 | 0.4556 | 0.4323 |
| 7   | 1.0000 | 0.9327 | 0.8706 | 0.8131 | 0.7599 | 0.7107 | 0.6651 | 0.6227 | 0.5835 | 0.5470 | 0.5132 | 0.4817 | 0.4523 | 0.4251 | 0.3996 | 0.3759 |
| 8   | 1.0000 | 0.9235 | 0.8535 | 0.7894 | 0.7307 | 0.6768 | 0.6274 | 0.5820 | 0.5403 | 0.5019 | 0.4665 | 0.4339 | 0.4039 | 0.3762 | 0.3506 | 0.3269 |
| 9   | 1.0000 | 0.9143 | 0.8368 | 0.7664 | 0.7026 | 0.6446 | 0.5919 | 0.5439 | 0.5002 | 0.4604 | 0.4241 | 0.3909 | 0.3606 | 0.3329 | 0.3075 | 0.2843 |
| 10  | 1.0000 | 0.9053 | 0.8203 | 0.7441 | 0.6756 | 0.6139 | 0.5584 | 0.5083 | 0.4632 | 0.4224 | 0.3855 | 0.3522 | 0.3220 | 0.2946 | 0.2697 | 0.2472 |
| 11  | 1.0000 | 0.8963 | 0.8043 | 0.7224 | 0.6496 | 0.5847 | 0.5268 | 0.4751 | 0.4289 | 0.3875 | 0.3505 | 0.3173 | 0.2875 | 0.2607 | 0.2366 | 0.2149 |
| 12  | 1.0000 | 0.8874 | 0.7885 | 0.7014 | 0.6246 | 0.5568 | 0.4970 | 0.4440 | 0.3971 | 0.3555 | 0.3186 | 0.2858 | 0.2567 | 0.2307 | 0.2076 | 0.1869 |
| 13  | 1.0000 | 0.8787 | 0.7730 | 0.6810 | 0.6006 | 0.5303 | 0.4688 | 0.4150 | 0.3677 | 0.3262 | 0.2897 | 0.2575 | 0.2292 | 0.2042 | 0.1821 | 0.1625 |
| 14  | 1.0000 | 0.8700 | 0.7579 | 0.6611 | 0.5775 | 0.5051 | 0.4423 | 0.3878 | 0.3405 | 0.2992 | 0.2633 | 0.2320 | 0.2046 | 0.1807 | 0.1597 | 0.1413 |
| 15  | 1.0000 | 0.8613 | 0.7430 | 0.6419 | 0.5553 | 0.4810 | 0.4173 | 0.3624 | 0.3152 | 0.2745 | 0.2394 | 0.2090 | 0.1827 | 0.1599 | 0.1401 | 0.1229 |
| 16  | 1.0000 | 0.8528 | 0.7284 | 0.6232 | 0.5339 | 0.4581 | 0.3936 | 0.3387 | 0.2919 | 0.2519 | 0.2176 | 0.1883 | 0.1631 | 0.1415 | 0.1229 | 0.1069 |
| 17  | 1.0000 | 0.8444 | 0.7142 | 0.6050 | 0.5134 | 0.4363 | 0.3714 | 0.3166 | 0.2703 | 0.2311 | 0.1978 | 0.1696 | 0.1456 | 0.1252 | 0.1078 | 0.0929 |
| 18  | 1.0000 | 0.8360 | 0.7002 | 0.5874 | 0.4936 | 0.4155 | 0.3503 | 0.2959 | 0.2502 | 0.2120 | 0.1799 | 0.1528 | 0.1300 | 0.1108 | 0.0946 | 0.0808 |
| 19  | 1.0000 | 0.8277 | 0.6864 | 0.5703 | 0.4746 | 0.3957 | 0.3305 | 0.2765 | 0.2317 | 0.1945 | 0.1635 | 0.1377 | 0.1161 | 0.0981 | 0.0829 | 0.0703 |
| 20  | 1.0000 | 0.8195 | 0.6730 | 0.5537 | 0.4564 | 0.3769 | 0.3118 | 0.2584 | 0.2145 | 0.1784 | 0.1486 | 0.1240 | 0.1037 | 0.0868 | 0.0728 | 0.0611 |
| 21  | 1.0000 | 0.8114 | 0.6598 | 0.5375 | 0.4388 | 0.3589 | 0.2942 | 0.2415 | 0.1987 | 0.1637 | 0.1351 | 0.1117 | 0.0926 | 0.0768 | 0.0638 | 0.0531 |
| 22  | 1.0000 | 0.8034 | 0.6468 | 0.5219 | 0.4220 | 0.3418 | 0.2775 | 0.2257 | 0.1839 | 0.1502 | 0.1228 | 0.1007 | 0.0826 | 0.0680 | 0.0560 | 0.0462 |
| 23  | 1.0000 | 0.7954 | 0.6342 | 0.5067 | 0.4057 | 0.3256 | 0.2618 | 0.2109 | 0.1703 | 0.1378 | 0.1117 | 0.0907 | 0.0738 | 0.0601 | 0.0491 | 0.0402 |
| 24  | 1.0000 | 0.7876 | 0.6217 | 0.4919 | 0.3901 | 0.3101 | 0.2470 | 0.1971 | 0.1577 | 0.1264 | 0.1015 | 0.0817 | 0.0659 | 0.0532 | 0.0431 | 0.0349 |
| 25  | 1.0000 | 0.7798 | 0.6095 | 0.4776 | 0.3751 | 0.2953 | 0.2330 | 0.1842 | 0.1460 | 0.1160 | 0.0923 | 0.0736 | 0.0588 | 0.0471 | 0.0378 | 0.0304 |
| 26  | 1.0000 | 0.7720 | 0.5976 | 0.4637 | 0.3607 | 0.2812 | 0.2198 | 0.1722 | 0.1352 | 0.1064 | 0.0839 | 0.0663 | 0.0525 | 0.0417 | 0.0331 | 0.0264 |
| 27  | 1.0000 | 0.7644 | 0.5859 | 0.4502 | 0.3468 | 0.2678 | 0.2074 | 0.1609 | 0.1252 | 0.0976 | 0.0763 | 0.0597 | 0.0469 | 0.0369 | 0.0291 | 0.0230 |
| 28  | 1.0000 | 0.7568 | 0.5744 | 0.4371 | 0.3335 | 0.2551 | 0.1956 | 0.1504 | 0.1159 | 0.0895 | 0.0693 | 0.0538 | 0.0419 | 0.0326 | 0.0255 | 0.0200 |
| 29  | 1.0000 | 0.7493 | 0.5631 | 0.4243 | 0.3207 | 0.2429 | 0.1846 | 0.1406 | 0.1073 | 0.0822 | 0.0630 | 0.0485 | 0.0374 | 0.0289 | 0.0224 | 0.0174 |
| 30  | 1.0000 | 0.7419 | 0.5521 | 0.4120 | 0.3083 | 0.2314 | 0.1741 | 0.1314 | 0.0994 | 0.0754 | 0.0573 | 0.0437 | 0.0334 | 0.0256 | 0.0196 | 0.0151 |



**Table 3: Future value of an annuity of R1 per period for  $n$  periods**

| $n$ | 1%      | 2%      | 3%      | 4%      | 5%      | 6%      | 7%      | 8%       | 9%       | 10%      | 11%      | 12%      | 13%      | 14%      | 15%      |
|-----|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1   | 1.0000  | 1.0000  | 1.0000  | 1.0000  | 1.0000  | 1.0000  | 1.0000  | 1.0000   | 1.0000   | 1.0000   | 1.0000   | 1.0000   | 1.0000   | 1.0000   | 1.0000   |
| 2   | 2.0100  | 2.0200  | 2.0300  | 2.0400  | 2.0500  | 2.0600  | 2.0700  | 2.0800   | 2.0900   | 2.1000   | 2.1100   | 2.1200   | 2.1300   | 2.1400   | 2.1500   |
| 3   | 3.0301  | 3.0604  | 3.0909  | 3.1216  | 3.1525  | 3.1836  | 3.2149  | 3.2464   | 3.2781   | 3.3100   | 3.3421   | 3.3744   | 3.4069   | 3.4396   | 3.4725   |
| 4   | 4.0604  | 4.1216  | 4.1836  | 4.2465  | 4.3101  | 4.3746  | 4.4399  | 4.5061   | 4.5731   | 4.6410   | 4.7097   | 4.7793   | 4.8498   | 4.9211   | 4.9934   |
| 5   | 5.1010  | 5.2040  | 5.3091  | 5.4163  | 5.5256  | 5.6371  | 5.7507  | 5.8666   | 5.9847   | 6.1051   | 6.2278   | 6.3528   | 6.4803   | 6.6101   | 6.7424   |
| 6   | 6.1520  | 6.3081  | 6.4684  | 6.6330  | 6.8019  | 6.9753  | 7.1533  | 7.3359   | 7.5233   | 7.7156   | 7.9129   | 8.1152   | 8.3227   | 8.5355   | 8.7537   |
| 7   | 7.2135  | 7.4343  | 7.6625  | 7.8983  | 8.1420  | 8.3938  | 8.6540  | 8.9228   | 9.2004   | 9.4872   | 9.7833   | 10.0890  | 10.4047  | 10.7305  | 11.0668  |
| 8   | 8.2857  | 8.5830  | 8.8923  | 9.2142  | 9.5491  | 9.8975  | 10.2598 | 10.6366  | 11.0285  | 11.4359  | 11.8594  | 12.2997  | 12.7573  | 13.2328  | 13.7268  |
| 9   | 9.3685  | 9.7546  | 10.1591 | 10.5828 | 11.0266 | 11.4913 | 11.9780 | 12.4876  | 13.0210  | 13.5795  | 14.1640  | 14.7757  | 15.4157  | 16.0853  | 16.7858  |
| 10  | 10.4622 | 10.9497 | 11.4639 | 12.0061 | 12.5779 | 13.1808 | 13.8164 | 14.4866  | 15.1929  | 15.9374  | 16.7220  | 17.5487  | 18.4197  | 19.3373  | 20.3037  |
| 11  | 11.5668 | 12.1687 | 12.8078 | 13.4864 | 14.2068 | 14.9716 | 15.7836 | 16.6455  | 17.5603  | 18.5312  | 19.5614  | 20.6546  | 21.8143  | 23.0445  | 24.3493  |
| 12  | 12.6825 | 13.4121 | 14.1920 | 15.0258 | 15.9171 | 16.8699 | 17.8885 | 18.9771  | 20.1407  | 21.3843  | 22.7132  | 24.1331  | 25.6502  | 27.2707  | 29.0017  |
| 13  | 13.8093 | 14.6803 | 15.6178 | 16.6268 | 17.7130 | 18.8821 | 20.1406 | 21.4953  | 22.9534  | 24.5227  | 26.2116  | 28.0291  | 29.9847  | 32.0887  | 34.3519  |
| 14  | 14.9474 | 15.9739 | 17.0863 | 18.2919 | 19.5986 | 21.0151 | 22.5505 | 24.2149  | 26.0192  | 27.9750  | 30.0949  | 32.3926  | 34.8827  | 37.5811  | 40.5047  |
| 15  | 16.0969 | 17.2934 | 18.5989 | 20.0236 | 21.5786 | 23.2760 | 25.1290 | 27.1521  | 29.3609  | 31.7725  | 34.4054  | 37.2797  | 40.4175  | 43.8424  | 47.5804  |
| 16  | 17.2579 | 18.6393 | 20.1569 | 21.8245 | 23.6575 | 25.6725 | 27.8881 | 30.3243  | 33.0034  | 35.9497  | 39.1899  | 42.7533  | 46.6717  | 50.9804  | 55.7175  |
| 17  | 18.4304 | 20.0121 | 21.7616 | 23.6975 | 25.8404 | 28.2129 | 30.8402 | 33.7502  | 36.9737  | 40.5447  | 44.5008  | 48.8837  | 53.7391  | 59.1176  | 65.0751  |
| 18  | 19.6147 | 21.4123 | 23.4144 | 25.6454 | 28.1324 | 30.9057 | 33.9990 | 37.4502  | 41.3013  | 45.5992  | 50.3959  | 55.7497  | 61.7251  | 68.3941  | 75.8364  |
| 19  | 20.8109 | 22.8406 | 25.1169 | 27.6712 | 30.5390 | 33.7600 | 37.3790 | 41.4463  | 46.0185  | 51.1591  | 56.9395  | 63.4397  | 70.7494  | 78.9692  | 88.2118  |
| 20  | 22.0190 | 24.2974 | 26.8704 | 29.7781 | 33.0660 | 36.7856 | 40.9955 | 45.7620  | 51.1601  | 57.2750  | 64.2028  | 72.0524  | 80.9468  | 91.0249  | 102.4436 |
| 21  | 23.2392 | 25.7833 | 28.6765 | 31.9692 | 35.7193 | 39.9927 | 44.8652 | 50.4229  | 56.7645  | 64.0025  | 72.2651  | 81.6987  | 92.4699  | 104.7684 | 118.8101 |
| 22  | 24.4716 | 27.2990 | 30.5368 | 34.2480 | 38.5052 | 43.3923 | 49.0057 | 55.4568  | 62.8733  | 71.4027  | 81.2143  | 92.5026  | 105.4910 | 120.4360 | 137.6316 |
| 23  | 25.7163 | 28.8450 | 32.4529 | 36.6179 | 41.4305 | 46.9958 | 53.4361 | 60.8933  | 69.5319  | 79.5430  | 91.1479  | 104.6029 | 120.2048 | 138.2970 | 159.2764 |
| 24  | 26.9735 | 30.4219 | 34.4265 | 39.0826 | 44.5020 | 50.8156 | 58.1767 | 66.7648  | 76.7898  | 88.4973  | 102.1742 | 118.1552 | 136.8315 | 158.6586 | 184.1678 |
| 25  | 28.2432 | 32.0303 | 36.4593 | 41.6459 | 47.7271 | 54.8645 | 63.2490 | 73.1059  | 84.7009  | 98.3471  | 114.4133 | 133.3339 | 155.6196 | 181.8708 | 212.7930 |
| 26  | 29.5256 | 33.6709 | 38.5530 | 44.3117 | 51.1135 | 59.1564 | 68.6765 | 79.9544  | 93.3240  | 109.1818 | 127.9988 | 150.3339 | 176.8501 | 208.3327 | 245.7120 |
| 27  | 30.8209 | 35.3443 | 40.7096 | 47.0842 | 54.6691 | 63.7058 | 74.4838 | 87.3508  | 102.7231 | 121.0999 | 143.0786 | 169.3740 | 200.8406 | 238.4993 | 283.5688 |
| 28  | 32.1291 | 37.0512 | 42.9309 | 49.9676 | 58.4026 | 68.5281 | 80.6977 | 95.3388  | 112.9682 | 134.2099 | 159.8173 | 190.6989 | 227.9499 | 272.8892 | 327.1041 |
| 29  | 33.4504 | 38.7922 | 45.2189 | 52.9663 | 62.3227 | 73.6398 | 87.3465 | 103.9659 | 124.1354 | 148.6309 | 178.3972 | 214.5828 | 258.5834 | 312.0937 | 377.1697 |
| 30  | 34.7849 | 40.5681 | 47.5754 | 56.0849 | 66.4388 | 79.0582 | 94.4608 | 113.2832 | 136.3075 | 164.4940 | 199.0209 | 241.3327 | 293.1992 | 356.7868 | 434.7451 |

**Table 4: Present value of an annuity of R1 per period for  $n$  periods**

| $n$ | 1%      | 2%      | 3%      | 4%      | 5%      | 6%      | 7%      | 8%      | 9%      | 10%    | 11%    | 12%    | 13%    | 14%    | 15%    |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| 1   | 0.9901  | 0.9804  | 0.9709  | 0.9615  | 0.9524  | 0.9434  | 0.9346  | 0.9259  | 0.9174  | 0.9091 | 0.9009 | 0.8929 | 0.8850 | 0.8772 | 0.8696 |
| 2   | 1.9704  | 1.9416  | 1.9135  | 1.8861  | 1.8594  | 1.8334  | 1.8080  | 1.7833  | 1.7591  | 1.7355 | 1.7125 | 1.6901 | 1.6681 | 1.6467 | 1.6257 |
| 3   | 2.9410  | 2.8839  | 2.8286  | 2.7751  | 2.7232  | 2.6730  | 2.6243  | 2.5771  | 2.5313  | 2.4869 | 2.4437 | 2.4018 | 2.3612 | 2.3216 | 2.2832 |
| 4   | 3.9020  | 3.8077  | 3.7171  | 3.6299  | 3.5460  | 3.4651  | 3.3872  | 3.3121  | 3.2397  | 3.1699 | 3.1024 | 3.0373 | 2.9745 | 2.9137 | 2.8550 |
| 5   | 4.8534  | 4.7135  | 4.5797  | 4.4518  | 4.3295  | 4.2124  | 4.1002  | 3.9927  | 3.8897  | 3.7908 | 3.6959 | 3.6048 | 3.5172 | 3.4331 | 3.3522 |
| 6   | 5.7955  | 5.6014  | 5.4172  | 5.2421  | 5.0757  | 4.9173  | 4.7665  | 4.6229  | 4.4859  | 4.3553 | 4.2305 | 4.1114 | 3.9975 | 3.8887 | 3.7845 |
| 7   | 6.7282  | 6.4720  | 6.2303  | 6.0021  | 5.7864  | 5.5824  | 5.3893  | 5.2064  | 5.0330  | 4.8684 | 4.7122 | 4.5638 | 4.4226 | 4.2883 | 4.1604 |
| 8   | 7.6517  | 7.3255  | 7.0197  | 6.7327  | 6.4632  | 6.2098  | 5.9713  | 5.7466  | 5.5348  | 5.3349 | 5.1461 | 4.9676 | 4.7988 | 4.6389 | 4.4873 |
| 9   | 8.5660  | 8.1622  | 7.7861  | 7.4353  | 7.1078  | 6.8017  | 6.5152  | 6.2469  | 5.9952  | 5.7590 | 5.5370 | 5.3282 | 5.1317 | 4.9464 | 4.7716 |
| 10  | 9.4713  | 8.9826  | 8.5302  | 8.1109  | 7.7217  | 7.3601  | 7.0236  | 6.7101  | 6.4177  | 6.1446 | 5.8892 | 5.6502 | 5.4262 | 5.2161 | 5.0188 |
| 11  | 10.3676 | 9.7868  | 9.2526  | 8.7605  | 8.3064  | 7.8869  | 7.4987  | 7.1390  | 6.8052  | 6.4951 | 6.2065 | 5.9377 | 5.6869 | 5.4527 | 5.2337 |
| 12  | 11.2551 | 10.5753 | 9.9540  | 9.3851  | 8.8633  | 8.3838  | 7.9427  | 7.5361  | 7.1607  | 6.8137 | 6.4924 | 6.1944 | 5.9176 | 5.6603 | 5.4206 |
| 13  | 12.1337 | 11.3484 | 10.6350 | 9.9856  | 9.3936  | 8.8527  | 8.3577  | 7.9038  | 7.4869  | 7.1034 | 6.7499 | 6.4235 | 6.1218 | 5.8424 | 5.5831 |
| 14  | 13.0037 | 12.1062 | 11.2961 | 10.5631 | 9.8986  | 9.2950  | 8.7455  | 8.2442  | 7.7862  | 7.3667 | 6.9819 | 6.6282 | 6.3025 | 6.0021 | 5.7245 |
| 15  | 13.8651 | 12.8493 | 11.9379 | 11.1184 | 10.3797 | 9.7122  | 9.1079  | 8.5595  | 8.0607  | 7.6061 | 7.1909 | 6.8109 | 6.4624 | 6.1422 | 5.8474 |
| 16  | 14.7179 | 13.5777 | 12.5611 | 11.6523 | 10.8378 | 10.1059 | 9.4466  | 8.8514  | 8.3126  | 7.8237 | 7.3792 | 6.9740 | 6.6039 | 6.2651 | 5.9542 |
| 17  | 15.5623 | 14.2919 | 13.1661 | 12.1657 | 11.2741 | 10.4773 | 9.7632  | 9.1216  | 8.5436  | 8.0216 | 7.5488 | 7.1196 | 6.7291 | 6.3729 | 6.0472 |
| 18  | 16.3983 | 14.9920 | 13.7535 | 12.6593 | 11.6896 | 10.8276 | 10.0591 | 9.3719  | 8.7556  | 8.2014 | 7.7016 | 7.2497 | 6.8399 | 6.4674 | 6.1280 |
| 19  | 17.2260 | 15.6785 | 14.3238 | 13.1339 | 12.0853 | 11.1581 | 10.3356 | 9.6036  | 8.9501  | 8.3649 | 7.8393 | 7.3658 | 6.9380 | 6.5504 | 6.1982 |
| 20  | 18.0456 | 16.3514 | 14.8775 | 13.5903 | 12.4622 | 11.4699 | 10.5940 | 9.8181  | 9.1285  | 8.5136 | 7.9633 | 7.4694 | 7.0248 | 6.6231 | 6.2593 |
| 21  | 18.8570 | 17.0112 | 15.4150 | 14.0292 | 12.8212 | 11.7641 | 10.8355 | 10.0168 | 9.2922  | 8.6487 | 8.0751 | 7.5620 | 7.1016 | 6.6870 | 6.3125 |
| 22  | 19.6604 | 17.6580 | 15.9369 | 14.4511 | 13.1630 | 12.0416 | 11.0612 | 10.2007 | 9.4424  | 8.7715 | 8.1757 | 7.6446 | 7.1695 | 6.7429 | 6.3587 |
| 23  | 20.4558 | 18.2922 | 16.4436 | 14.8568 | 13.4886 | 12.3034 | 11.2722 | 10.3711 | 9.5802  | 8.8832 | 8.2664 | 7.7184 | 7.2297 | 6.7921 | 6.3988 |
| 24  | 21.2434 | 18.9139 | 16.9355 | 15.2470 | 13.7986 | 12.5504 | 11.4693 | 10.5288 | 9.7066  | 8.9847 | 8.3481 | 7.7843 | 7.2829 | 6.8351 | 6.4338 |
| 25  | 22.0232 | 19.5235 | 17.4131 | 15.6221 | 14.0939 | 12.7834 | 11.6536 | 10.6748 | 9.8226  | 9.0770 | 8.4217 | 7.8431 | 7.3300 | 6.8729 | 6.4641 |
| 26  | 22.7952 | 20.1210 | 17.8768 | 15.9828 | 14.3752 | 13.0032 | 11.8258 | 10.8100 | 9.9290  | 9.1609 | 8.4881 | 7.8957 | 7.3717 | 6.9061 | 6.4906 |
| 27  | 23.5596 | 20.7069 | 18.3270 | 16.3296 | 14.6430 | 13.2105 | 11.9867 | 10.9352 | 10.0266 | 9.2372 | 8.5478 | 7.9426 | 7.4086 | 6.9352 | 6.5135 |
| 28  | 24.3164 | 21.2813 | 18.7641 | 16.6631 | 14.8981 | 13.4062 | 12.1371 | 11.0511 | 10.1161 | 9.3066 | 8.6016 | 7.9844 | 7.4412 | 6.9607 | 6.5335 |
| 29  | 25.0658 | 21.8444 | 19.1885 | 16.9837 | 15.1411 | 13.5907 | 12.2777 | 11.1584 | 10.1983 | 9.3696 | 8.6501 | 8.0218 | 7.4701 | 6.9830 | 6.5509 |
| 30  | 25.8077 | 22.3965 | 19.6004 | 17.2920 | 15.3725 | 13.7648 | 12.4090 | 11.2578 | 10.2737 | 9.4269 | 8.6938 | 8.0552 | 7.4957 | 7.0027 | 6.5660 |