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Mid Term Exam (SUGGESTED SOLUTIONS)
Intermediate Financial Accounting II
Fall 2015
ADM3340 Sections A, B, & C

Section	Class time/day	Tick one
Section A	Tuesday 8:30am & Friday 10:00am	
Section B	Tuesday 7:00pm	
Section C	Wednesday 10:00am & Friday 8:30am	

Name: _____ **ID#:** _____

INSTRUCTIONS

- Write your name and student ID number above. Display your student ID on your desk during the exam.
- Reminder: it is an offence to have a cell phone or any other communication device in your possession during this exam's three hours. (see the Statement of Academic integrity on page 2 of this exam).
- This examination "SUGGESTED SOLUTION" comprises **4** multi-part questions over **19** numbered pages.
- Answer all questions in this booklet.
- Booklet is **not** to be removed from the examination room. You may not separate the pages.
- Do not answer questions using a pencil or erasable pen: if you do you will forfeit the right to ask that your exam be remarked.
- Limit your answer to the space provided. Blank sheets for rough work and supporting calculations are given at the end of each question.
- This exam will be marked out of **100** marks (for convenience) and is 2½ hours long. You should budget approximately **1.5** minutes per mark. The exam is worth 40% of the overall course mark.
- Please do not ask the invigilator or the professor any questions, as they will not be answered. State reasonable assumptions, if you feel they are necessary.
- This exam paper must remain stapled: do not take this exam paper apart.
- Present value tables are provided on pages **18 and 19**.
- Language (non-electronic) dictionaries are allowed with the proctor's permission.
- You must provide an audit trail for any answers you generate with an electronic calculator.
- You ***must*** sign the Statement of Academic integrity on page 2 of this exam.

	Question		Marks
Ch 12	1: part 1	Intangibles: definitions & criteria	/6
	1: parts 2-3	Intangibles: impairment, IFRS & ASPE	/11
	1: part 4	Goodwill	/3
Ch 13	2: part 1	Warranties	/7
	2: part 2	Premiums	/10
	2: part 3	Liability: definition	/3
Ch 14	3: part 1	Bond liabilities: issuance & other life-cycle events	/13
	3: part 2	Bond liabilities: retirement	/12
	3: part 3	Bond liabilities: exchange	/15
Ch 15	4: part 1	Retained earnings	/5
	4: part 2	Treasury stock	/6
	4: part 3	Various	/9
	TOTAL		/100

Statement of Academic Integrity
The Telfer School of Management does not condone academic fraud, an act by a student that may result in a false academic evaluation of that student or of another student. Without limiting the generality of this definition, academic fraud occurs when a student commits any of the following offences: plagiarism or cheating of any kind, use of books, notes, mathematical tables, dictionaries or other study aid unless an explicit written note to the contrary appears on the exam, to have in his/her possession cameras, radios (radios with head-sets), tape recorders, pagers, cell phones, or any other communication device which has not been previously authorized in writing.

Statement to be signed by the student:
I have read the text on academic integrity and I pledge not to have committed or attempted to commit academic fraud in this examination.

Signed:_____

Note: an examination copy or booklet without that signed statement will not be graded and will receive an exam grade of zero.

QUESTION 1 (20 marks)
Answer ALL parts to this question.

PART 1: (6 marks)
Provide clear, concise answers for the following.

(a) What are intangible assets for financial reporting purposes? (3 marks)

(b) What are the six specific conditions that need to be demonstrated in order to capitalize costs incurred in the development phase of an intangible item? (3 marks)

Solution (see also pages 737 & 742 in Kieso et al, 10th Can Ed.)

(a) **Intangible assets are assets that are:**

1. **individually identifiable (results from contractual or other legal rights, or can be separated or divided from the entity and sold, transferred, rented, or exchanged);**
2. **have a non-physical existence; and**
3. **are non-monetary in nature.**

(b)

1. **Technical feasibility of completing the intangible asset**
2. **The entity's intention to complete it for use or sale**
3. **The entity's ability to use or sell it**
4. **Availability of technical, financial, and other resources needed to complete it, and to use or sell it**
5. **The way in which the future economic benefits will be generated; including the existence of a market for the asset if it will be sold, or its usefulness to the entity if it will be used internally**
6. **The ability to reliably measure the costs associated with and attributed to the intangible asset during its development**

QUESTION 1 (20 marks) (continued)
Answer ALL parts to this question.

PART 2: (6 marks)

At the end of 2014, Kilkee Corporation owns a licence with a remaining life of 10 years and a carrying amount of $530,000. Kilkee expects undiscounted future cash flows from this licence to total $535,000. The licence's fair value is $425,000 and disposal costs are estimated to be nil. The licence's discounted cash flows (that is, value in use) are estimated to be $475,000. Kilkee prepares financial statements in accordance with IFRS.

Required (you must show all supporting calculations)

Assume Kilkee prepares financial statements in accordance with IFRS.

(a) Determine if the licence is impaired at the end of 2014 and prepare any related entries that are necessary. (2 marks)

(b) Assume the recoverable amount is calculated to be $450,000 at the end of 2015. Determine if the licence is impaired at the end of 2015 and prepare any related entries that are necessary. (2 marks)

(c) Explain how the answer to (b) would change if the licence's fair value is $500,000 at the end of 2015. (2 marks)

PART 3: (5 marks)

Required (you must show all supporting calculations)

Assume Kilkee prepares financial statements in accordance with ASPE.

(a) Determine if the license is impaired at the end of 2014 and prepare any related entries that are necessary. (2 marks)

(b) Assume the recoverable amount under ASPE (undiscounted future cash flows) is calculated to be $500,000 at the end of 2015. Determine if the license is impaired at the end of 2015 and prepare any related entries that are necessary. (2 marks)

(c) Explain how the answer to (b) would change if the license's fair value is $500,000 at the end of 2015. (1 marks)

Part 2(a)Under IFRS, the recoverable amount is the higher of value in use and fair value less costs to sell (both of which are discounted amounts). In this case, the licence is impaired at the end of 2014 since:

Recoverable amount of $475,000 < Carrying amount of $530,000.
The impairment loss of $55,000 would be recorded.

The journal entry under IFRS would be:

Dr. Loss on Impairment	**55,000**	
Cr. Accumulated Impairment Losses—Intangible Assets – Licences		**55,000**

After this j/e on 31/12/2014 the asset's carrying amount = $475,000 [=$530,000 - $55,000]

Part 2(b) If the estimates used to determine the asset's value in use and fair value less costs to sell have changed, then a reversal of the impairment is recognized. The reversal amount, however, is limited when using the cost (rather than revaluation) model. The specific asset cannot be increased in value to more than what its carrying amount would have been, net of amortization, if the original impairment loss had never been recognized. The carrying amount would have been $530,000 - $53,000 = $477,000.

Thus, in this case there would be a reversal since (i) the recoverable amount of $450,000 is less than $477,000 and (ii) the recoverable amount of $450,000 is greater than the carrying amount of $427,500*.

*** Carrying amount at end of 2015 = 475,000 – 47,500 [amortization 475,000/10] = $427,500**

Therefore carrying amount can be increased to $450,000.
Reversal = 450,000 – 427,500 = $22,500.

Accumulated Impairment Losses – Licences	**22,500**	
Recovery of Loss from Impairment		**22,500**

Part 2(c) If the licence's fair value is $500,000 at the end of 2015, the recoverable amount at the end of 2015 would be $500,000 (since recoverable amount is the higher of value in use and fair value less costs to sell). However, the licence cannot be increased in value to more than what its carrying amount would have been, net of amortization, if the original impairment loss had never been recognized (i.e. $530,000 – $53,000 amortization = $477,000).

Therefore carrying amount can be increased to $477,000.
Reversal = $477,000 – $427,500 = $49,500.

Accumulated Impairment Losses – Licences	49,500	
Recovery of Loss from Impairment		49,500

Part 3(a) Under ASPE, for a limited-life asset, the undiscounted future cash flows are compared to the carrying amount. In this case, there is no impairment loss under ASPE since:

Recoverable amount (undiscounted future cash flows) of $535,000 > Carrying amount of $530,000

Part 3(b) Recoverable amount (undiscounted future cash flows) of $500,000 > Carrying amount of $477,000 ($530,000 – $53,000 amortization) at the end of 2015, therefore there is no impairment loss under ASPE. In any case, reversal of impairment loss is not permitted under ASPE.

Part 3(c) The answer to part (b) would not change if the licence's fair value is $500,000 because under ASPE, the impairment test compares carrying amount of the asset to undiscounted future cash flows. The impairment test is not affected by fair value of the licence.

PART 4: (3 marks)

On September 1, 2015, Luigi Corporation acquired Edinburgh Enterprises for a cash payment of $863,000. At the time of purchase, Edinburgh's statement of financial position showed assets of $900,000, liabilities of $460,000, and owners' equity of $440,000. The fair value of Edinburgh's assets is estimated to be $1,160,000.

Required (show all supporting calculations)

Determine the amount of goodwill acquired by Luigi.

Fair value of consideration transferred		
		$863,000
Fair value of identifiable assets	**$1,160,000**	
Less fair value of liabilities	**(460,000)**	
Fair value of net identifiable assets		**700,000**
Value assigned to goodwill		**$163,000**

QUESTION 2 (20 marks)
Answer ALL parts to this question. Each part is independent.

PART 1: (7 marks)

Echo Corporation manufactures a line of amplifiers that carry a three-year warranty. Based on experience, the estimated warranty costs related to dollar sales are as follows: first year after sale – 2% of sales; second year after sale – 3% of sales; and third year after sale – 4% of sales. Sales and actual warrant expenditures for the first three years of business were:

	Sales	Actual Warranty Expenditures
2012	$ 810,000	$ 6,500
2013	1,070,000	67,200
2014	1,036,000	162,000

Required (show all supporting calculations)

Assume that all sales are made evenly throughout each year and that warranty expenditures are also evenly spaced according to the rates above. Echo Corporation uses the expense approach when accounting for its warranties.

(a) Calculate the amount Echo Corporation should report as a warranty expense on its 2014 income statement.

(b) Calculate the amount Echo Corporation should report as a warranty liability on its December 31, 2014 balance sheet.

(a) Estimated warranty expense for 2014:

On 2014 sales: $1,036,000 X .09* = $ 93,240

*** (2% of sales first year + 3% of sales second year + 4% of sales third year = 9% of sales)**

(b)
Estimated warranty costs:

On 2012 sales $ 810,000 X .09	$ 72,900
On 2013 sales $1,070,000 X .09	96,300
On 2014 sales $1,036,000 X .09	93,240
Total estimated costs	262,440
Total warranty expenditures	235,700*
Balance of liability, 31/12/14	$26,740

***2012—$6,500; 2013—$67,200, and 2014—$162,000.**

The liability account has a balance of $26,740 at 31/12/14 based on the difference between the estimated warranty costs (totaling $262,440) for the three years' sales and the actual warranty expenditures (totaling $235,700) during that same period.

QUESTION 2 (continued) (20 marks)
Answer ALL parts to this question. Each part is independent.

PART 2: (10 marks)

In 2014 Doneen Corporation sold 700,000 boxes of pies mix under a new sales promotion program. Each box contains one coupon that entitles the customer to a baking pan when the coupon is submitted with an additional $4.75 from the customer. Doneen pays $5.00 per pan and $1.25 for shipping and handling to the customer. Doneen estimates that 60% of the coupons will be redeemed even though only 105,000 coupons had been processed during 2014. Each box of pie mix is sold for $4.50 and Doneen estimates that $1.00 of the $4.50 sale price relates to the baking pan to be awarded. Doneen follows IFRS and accounts for its promotional programs in accordance with the revenue approach.

Required (show all supporting calculations)

Prepare any necessary 2014 journal entries for Doneen Corporation to record revenue, the liability, and coupon redemptions.

Cash	**3,150,000**	
Sales Revenue (700,000 X $3.50)		**2,450,000**
Unearned Revenue (700,000 x $1.00)		**700,000**
Cash (105,000 X $4.75)	**498,750**	
Premium Expense (105,000 X [$5.00 + $1.25 - $4.75])	**157,500**	
Inventory of Baking Pans (105,000 X $5.00)		**525,000**
Cash/Accounts Payable (105,000 X $1.25)		**131,250**
Unearned Revenue (700,000 X $1.00 X 25%*)	**175,000**	
Sales Revenue		**175,000**

***105,000/(60% x 700,000) = 25%**

The calculations below are not required in your answer:

Boxes sold	**700,000**
Sale price per unit related to premium	**X $1.00**
Unearned revenue recorded in 2014	**$700,000**
Total coupons expected to be redeemed (700,000 x 60%)	**420,000**
Less: coupons redeemed during 2014	**105,000**
Coupons still to be redeemed, 31/12/14	**315,000**
Total coupons expected to be redeemed	**÷ 420,000**
% of unearned revenue to be earned after 2014	**75%**
Unearned revenue recorded in 2014	**$700,000**
% of unearned revenue to be earned after 2014	**X 75%**
Unearned revenue (adjusted), 31/12/14	**$525,000**
Total coupons redeemed in 2014	**105,000**
Cost per redemption [($5.00 + $1.25) – $4.75]	**$1.50**
Premium expense	**$157,500**

PART 3: (3 marks)

Define *liability*.

_____

_____

_____

_____

_____

IFRS and ASPE *currently* define a liability as

- **An obligation of an enterprise**
- **Arising from past transactions or events**
- **The settlement of which may result in the transfer or use of assets, provision of services, or other yielding of economic benefits in the future.**

QUESTION 3 (40 marks)
Answer ALL parts to this question. Each part is independent.

PART 1: (12 marks)

On January 31, 2015 BondBeagle Inc. issues $2,000,000 face value bonds. The bond date is January 31, 2015, and the bonds carry a coupon rate of 4% per year, payable semi-annually on January 31 and July 31. The bonds' maturity date is January 31, 2035. The bonds provide an annual yield of 6%.

BondBeagle Inc. uses the effective interest rate method to amortize any bond premium or discount. BondBeagle Inc.'s accounting year-end is September 30.

Required (you must show all supporting calculations, including an audit trail if using a financial calculator)
Prepare all of the relevant journal entries from the time of issuance until and including January 31, 2016.

This "date table' is not required in students' answers. Source: www.bondbeagle.com

BondBeagle: Accounting for the Life-Cycle Events of Non-Convertible Bond Liabilities

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Intro | INPUT | Text | Date_Tables | Issuance_Calc | Issuance | I1 | I2 | I3 | I4 | I5 | Retirement | R1 | R2 | R3 | R4 | R5 | Matu

	A	B	C	D
2		TABLE 1 ISSUANCE		
3		Screen		
4			July 31, 2014	The closest preceding interest payment date to the issuance date
5			6	Number of months (rounded to the nearest whole month) between the issuance date and its closest preceding interest payment date.
6		Issuance	January 31, 2015	Date of issuance
7			6	Number of months (rounded to the nearest month) between the date of issuance and its first following interest payment date
8		I1	July 31, 2015	The first interest payment date after the issuance date
9			2	Number of months (rounded to the nearest month) between (a) the first interest payment date after the issuance date and (b) the first accounting year-end after the issuance date
10		I2	September 30, 2015	The first accounting year-end after the issuance date
11			4	Number of months (rounded to the nearest month) between (a) the first accounting year-end after the issuance date and (b) the second interest payment date after the issuance date
12		I3	January 31, 2016	The second interest payment date after the issuance date
13			6	Number of months (rounded to the nearest month) between (a) the second interest payment date after the issuance date and (b) the third interest payment date after the issuance date
14		I4	July 31, 2016	The third interest payment date after the issuance date
15			2	Number of months (rounded to the nearest month) between (a) the third interest payment date after the issuance date and (b) the second accounting year-end after the issuance date
16		I5	September 30, 2016	The second accounting year-end after the issuance date

		Issuance date	
20			
21		January 31, 2015	
22		There are 40 semi-annual interest payments (240 months) between January 31, 2015 and the maturity date, January 31, 2035	
23	Present value of the bond's 40.00 semi-annual interest payments of $40,000 (= $2,000,000 x 4.0000%/2) at 3.0000% (the computer-generated yield - see the IRR worksheet for details) per period: [$924,591 = 23.11477197 x $40,000]	924,590.88	
24	Present value of the maturity value of $2,000,000 at the end of 40.00 periods at 3.0000% (the computer-generated yield - see the IRR worksheet for details) per period: [$613,114 = 0.30655684 x $2,000,000]	613,113.68	
25			
26			
27	Total	1,537,704.56	

QUESTION 3 (40 marks)
Answer ALL parts to this question. Each part is independent.

PART 1: (12 marks) (continued)

Intro | INPUT | Text | Date_Tables | Issuance_Calc | **Issuance** | I1 | I2 | I3 | I4 | I5 | Retiremer

	B	C	D	E
2	January 31, 2015	Date of issuance	Dr	Cr
3				
4	Bond discount		462,295.44	
5	Cash		1,537,704.56	
6				
7		Bonds payable		2,000,000.00
8				
9				
10	To record the issuance of 20.00-year bonds, face value $2,000,000, stated interest rate 4.0000% per annum. The bond date is January 31, 2015 with interest paid semi-annually. There are 240 months (including 40 interest payments) between the bond's issuance and maturity dates. For details of how this journal entry's amounts are determined, please refer to the ISSUANCE_CALC sheet.			

Intro | INPUT | Text | Date_Tables | Issuance_Calc | Issuance | I1 | I2 | I3 | I4 | I5 | Retirement | R1 | R2 | R3 | R4 | R5 | Maturity | Amort_Table

	B	C	D	E	F
2	July 31, 2015	The first interest payment date after the issuance date	Dr	Cr	Instructions: Enter your data in the INPUT screen: all other screens are "Output screens".
3	Interest expense	Use Ctrl+ and Ctrl- to zoom in and out.	46,131.14		= $1,537,705 (see amortization table's semi-annual period 1) x 3.0000% (semi-annual yield) x 6/6 months
4		Bond discount		6,131.14	= $46,131 - $40,000, or = [$1,543,836 - $1,537,705 (the difference between the net bond liability at the end and the beginning of interest-payment-period 1 - see columns J and C on the amortization table)] x 6/6 months.
5		Interest payable		40,000.00	= $2,000,000 x 6/12 months x 4.0000%
6	To record bond interest expense incurred between January 31, 2015 (the date of issuance) and July 31, 2015. Effective interest rate method.				
7					
8					
9					
10	Interest payable	Use Ctrl+ and Ctrl- to zoom in and out.	40,000.00		= $40,000 interest accrued (as appears in the journal entry above)
11		Cash		40,000.00	
12	To record the bond interest payment.				

The "Interest Payable" entries are normally omitted and are presented here for illustration purposes only.

QUESTION 3 (40 marks)
Answer ALL parts to this question. Each part is independent.

PART 1: (13 marks) (continued)

Intro | INPUT | Text | Date_Tables | Issuance_Calc | Issuance | I1 | I2 | I3 | I4 | I5 | Retirement | R1 | R2 | R3 | R4 | R5 | Maturity | Amort_Table

	B	C	D	E	F
2	September 30, 2015	The first accounting year-end after the issuance date	Dr	Cr	
3	Interest expense		15,438.36		= $1,543,836 (see amortization table's semi-annual period 2) x 3.0000% (semi-annual yield) x 2/6 months
4		Bond discount		2,105.02	= $15,438 - $13,333
5		Interest payable		13,333.33	= $2,000,000 x 2/12 months x 4.0000%
6	To record bond interest expense incurred between July 31, 2015, the first interest payment date after the issuance date , and September 30, 2015 Effective interest rate method.				
7					
8					
9					
10		Use Ctrl+ and Ctrl- to zoom in and out.			
11					
12	There is no journal entry on September 30, 2015 for interest paid because September 30, 2015 is not an interest payment date.				

Intro | INPUT | Text | Date_Tables | Issuance_Calc | Issuance | I1 | I2 | I3 | I4 | I5 | Retirement | R1 | R2 | R3 | R4 | R5 | Maturity | Amort_Table

	B	C	D	E	F
2	January 31, 2016	The second interest payment date after the issuance date	Dr	Cr	
3	Interest expense		30,876.71		= $1,543,836 (see amortization table's semi-annual period 2) x 3.0000% (semi-annual yield) x 4/6 months
4		Bond discount		4,210.05	= $30,877 - $26,667
5		Interest payable		26,666.67	= $2,000,000 x 4/12 months x 4.0000%
6	To record bond interest expense incurred between September 30, 2015 (the first accounting year-end after the issuance date) and January 31, 2016. Effective interest rate method.				
7					
8					
9					
10	Interest payable	Use Ctrl+ and Ctrl- to zoom in and out.	40,000.00		= $26,667 interest accrued (as appears in the journal entry above) + $13,333 [$13,333 = $2,000,000 x 2/12 months x 4.0000% interest accrued at September 30, 2015, the first accounting year-end after the issuance date .]
11		Cash		40,000.00	
12	There is no journal entry on September 30, 2015 for interest paid because September 30, 2015 is not an interest payment date.				

The "Interest Payable" entries are normally omitted and are presented here for illustration purposes only.

QUESTION 2 (40 marks)
Answer ALL parts to this question. Each part is independent.

PART 2: (12 marks)

On March 30, 2015 BondBeagle Inc. issues $1,000,000 face value bonds. The bond date is March 30, 2015, and the bonds carry a coupon rate of 8% per year, payable semi-annually on March 31 and September 30. The bonds' maturity date is March 30, 2030. Proceeds upon issuance were $1,196,004, and the bonds provide an annual yield of 6%.

BondBeagle Inc. uses the effective interest rate method to amortize any bond premium or discount. On November 30, 2025 BondBeagle Inc. retires 40% ($400,000 face value) of the bonds at 104%, excluding accrued interest. BondBeagle Inc.'s accounting year-end is August 31.

Required (you must show all supporting calculations, including an audit trail if using a financial calculator)

Prepare the relevant journal entries on November 30, 2025.

This "date table' is not required in students' answers. Source: www.bondbeagle.com

TABLE 2 RETIREMENT

19	**Screen**		
20		August 31, 2025	The closest preceding accounting year-end date to the retirement date
21		1	Number of months (rounded to the nearest month) between (a) the closest preceding accounting year-end date to the retirement date and (b) the closest preceding interest payment date to the retirement date
22		September 30, 2025	The closest preceding interest payment date to the retirement date
23		2	Number of months (rounded to the nearest month) between (a) the closest preceding interest payment date to the retirement date and (b) the date of retirement
24	**Retirement**	**November 30, 2025**	**Date of retirement**
25		4	Number of months (rounded to the nearest whole month) between the retirement date and the first interest payment date after the retirement date
26	**R1**	March 31, 2026	The first interest payment date after the retirement date
27		5	Number of months (rounded to the nearest month) between (a) the first interest payment date after the retirement date and (b) the first accounting year-end after the retirement date
28	**R2**	August 31, 2026	The first accounting year-end after the retirement date
29		1	Number of months (rounded to the nearest month) between (a) the first accounting year-end after the retirement date and (b) the second interest payment date after the retirement date
30	**R3**	September 30, 2026	The second interest payment date after the retirement date
31		6	Number of months (rounded to the nearest month) between (a) the second interest payment date after the retirement date and (b) the third interest payment date after the retirement date
32	**R4**	March 31, 2027	The third interest payment date after the retirement date
33		5	Number of months (rounded to the nearest month) between (a) the third interest payment date after the retirement date and (b) the second accounting year-end after the retirement date
34	**R5**	August 31, 2027	The second accounting year-end after the retirement date

QUESTION 3 (40 marks)
Answer ALL parts to this question. Each part is independent.

$1,077,860 = the PV of cash flows: 9 remaining interest payments and the maturity value.

PART 2: (12 marks)

BondBeagle20140911 http://bomode.telfer.uottawa.ca/BondBeagle/Retirement_Sheet.aspx

BondBeagle: Accounting for the Life-Cycle Events of Non-Convertible Bond Liabilities

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Intro | INPUT | Text | Date_Tables | Issuance_Calc | Issuance | I1 | I2 | I3 | I4 | I5 | Retirement | R1 | R2 | R3 | R4 | R5 | Maturity | Amort_Table

Instructions: Enter your data in the INPUT screen: all other screens are "Output screens".

	B	C	D	E	F
2					
3	Date of retirement November 30, 2025		Dr	Cr	
4	Interest expense		4,311.44		= $1,077,860 (net bond liability at beginning of October 01, 2025) x 3.000000% (semi-annual yield) x 2/6 months x 40.0000% retired.
5	Bond premium		1,021.89		= $5,333 - $4,311
6		Interest payable		5,333.33	= $1,000,000 x 40.0000% retired x 2/12 months x 8.0000%
7					
8	To record interest expense incurred on 40.0000% of the bonds between September 30, 2025 (the closest preceding interest payment date to the retirement date) and November 30, 2025. Effective interest rate method. [Note: November 30, 2025 is neither an accounting year-end or a bond interest payment anniversary date.]				
9					
10					
11					
12					
13	Interest payable		5,333.33		= See above journal entry. September 30, 2025 is the closest preceding interest payment date to the date of retirement.
14	Bond payable		400,000.00		= $1,000,000 x 40.0000% retired
15	Bond premium		30,122.24		= [$77,860 (unamortized at beginning of October 01, 2025) x 40.0000% retired - $1,022 (amortization between September 30, 2025 and November 30, 2025 on the 40.0000% retired)]. September 30, 2025 is the closest preceding interest payment date to the date of retirement.
16					
17		Cash		421,333.33	= $416,000 (=$1,000,000 x 40.0000% x 104.0000%) + $5,333 accrued interest
18		Gain on bond retirement		14,122.24	= ($421,333 - $5,333) - ($400,000 + $30,122)
19	To record the retirement at 104.0000% of 15.00 year 8.0000% bonds, issued March 31, 2015, face value $400,000.				
20	BondBeagle Copyright (c) Brian Conheady. All Rights Reserved.				

Use Ctrl+ and Ctrl- to zoom in and out.

The "Interest Payable" entries are normally omitted and are presented here for illustration purposes only.

Question 3 (40 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 3: (15 marks)

On January 1, 2012 Springbok Limited issued a 5 year 8.00% $900,000 bond payable to Wallaby Bank. Interest payment dates are June 30 and December 31 and the bonds were issued to provide a semi-annual yield of 3.00%.

By December 2014 Springbok Limited is in financial difficulties and is about to miss the December 31, 2014 interest payment. Springbok Limited negotiates an arrangement with Wallaby Bank whereby Wallaby Bank agrees to waive the December 31, 2014 interest payment and to replace, effective December 31, 2014, the above bond with a 3 year $1,021,292 face value bond bearing 8.00% annual interest, payable semi-annually. Due to Springbok Limited's precarious situation, lenders would normally seek a semi-annual return of 7.00% on this 'bail-out' financing.

Required **(you must show all supporting calculations, including an audit trail when using a financial calculator)**

(a) Is this troubled debt restructuring/exchange a *settlement* (substantially different in accordance with IFRS 9.3.3.2 and ASPE 3856.27) or a *modification* (not substantial different in accordance with IFRS 9.3.3.2 and ASPE 3856.27).? Support your answer with all necessary calculations. (5 marks)

(b) Assume this troubled debt restructuring is a *settlement*. Provide any journal entries for the *settlement* on Springbok Limited's books that may be necessary on December 31, 2014. Support your answer with all necessary calculations. (5 marks)

(c) Assume this troubled debt restructuring is a *modification*. Prepare Springbok Limited's journal entry necessary on June 30, 2015 for its liability to Wallaby Bank. Support your answer with all necessary calculations. (5 marks)

Source:
http://bomode.telfer.uottawa.ca/tdr/TDR_Sheet.aspx

Derecognition of financial liabilities through (i) an exchange with an existing lender or (ii) modification of terms, in accordance with IFRS 9 and Canadian ASPE.

Reset Recalculate

TDR | Steps1and2 | Step3_Substantial | Step3_NotSubstantial | IRR | IFRS_9 | ASPE_3856 | OtherApps

	A	B	C	D	E	F	G
1	Step 1:	Compare the new financing arrangement and the old financial liability using the old financial liability's original effective interest rate.					
2	Step 1(a):	Calculate the PV of the old 5 year bond at December 31, 2014, using the old bond's historic 3.00% semi-annual yield:					
3	PV Annuity, 4 semi-annual periods, 3.00%, $36,000:		$36,000	3.00%	4	3.717098403	$133,816
4	PV, 4 semi-annual periods, 3.00%, $900,000:		$900,000	3.00%	4	0.888487048	799,638
5							933,454
6	December 31, 2014 interest payable:						36,000
7	PV of the old financial liability owed at December 31, 2014, using its 3.00% original effective interest rate:						$969,454
8	The unamortized premium on the old financial liability:						$33,454
9							
10	Step 1(b)	Calculate the PV of the new 3 year financing arrangement at December 31, 2014, using the old bond's historic 3.00% semi-annual yield:					
11	PV Annuity, 6 semi-annual periods, 3.00%, $40,852:		$40,852	3.00%	6	5.417191444	$221,301
12	PV, 6 semi-annual periods, 3.00%, $1,021,292:		$1,021,292	3.00%	6	0.837484257	855,316
13	PV of the new financiing arrangement at December 31, 2014, using the old financial liability's 3.00% original effective interest rate:						$1,076,617
14							
15	Step 2:	Apply the '10%' test to determine if the old financial liability and the new financial arrangement differ SUBSTANTIALLY from one another.					
16	Difference ($969,454 - $1,076,617):						$107,163
17	Difference as a percentage of $969,454:						11.05%
18							
19	Conclusion: in accordance with IFRS 9.3.3.2, IFRS 9.B3.3.6, ASPE 3856.27, and ASPE 3856.A52 because the difference as a percentage of $969,454 is at least 10% (i) the old financial liability must be derecognized, (ii) a new financial liability recognized, and (iii) a gain/loss recorded.						
20							
21	© Brian Conheady 2014				Last updated 02 October 2014		

Question 3 (40 marks) (continued)
Answer ALL parts to this question.

PART 3: (15 marks) (continued)

TDR | Steps1and2 | **Step3_Substantial** | Step3_NotSubstantial | IRR | IFRS_9 | ASPE_3856 | OtherApps

	A	B	C	D	E	F	G
1	**Step 3: when Step 2's 'difference' is SUBSTANTIAL [i.e., is at least 10% (this type of financial arrangement is called a 'settlement' by some textbooks)] and therefore, in accordance with IFRS 9.3.3.2 and ASPE 3856.27, requires (i) derecognition of the old financial liability, (ii) recognition of a new financial liability, and (iii) recognition of any gain/loss on the transaction.**						
2	**Step 3(a): calculate the PV of the new 3 year financial arrangement at 31/12/2014, using the prevailing 7.00% semi-annual effective interest rate for financial liabilities with similar risk & maturity.**						
3	PV Annuity, 6 semi-annual periods, 7.00%, $40,852:		$40,852	7.00%	6	4.766539660	$194,721
4	PV, 6 semi-annual periods, 7.00%, $1,021,292:		$1,021,292	7.00%	6	0.666342224	680,530
5	PV of the new bond:						$875,251
6	Face value of the new 3 year bond:						1,021,292
7	Therefore, the discount on the (new) bond is:						$146,041
8							
9	**Step 3(b): record the 31/12/2014 journal entry required to (i) derecognize the old financial liability, (ii) recognize a new financial liability, and (iii) recognize any gain/loss on the transaction:**						
10				Dr	Cr		
11	(Old) Bond payable			900,000			
12	(Old) Bond premium			33,454		[=$900,000 - $933,454].	
13	Interest payable (on Old Bond)			36,000			
14	(New) Bond discount			146,041			
15		(New) Bond payable			1,021,292		
16		Gain on bond restructuring			94,203	[= $969,454 - $875,251].	

TDR | Steps1and2 | Step3_Substantial | **Step3_NotSubstantial** | IRR | IFRS_9 | ASPE_3856 | OtherApps

	A	B	C	D	E	F	G	H	I	J
1	**Step 3: when Step 2's 'difference' is NOT-SUBSTANTIAL [i.e., is less than 10% (this type of financial arrangement is called a 'modification' by some textbooks)] and therefore, in accordance with IFRS 9.3.3.2 and ASPE 3856.27, does not result in the derecognition of the old financial liability or recognition of a new financial liability.**									
2	**Step 3(a): calculate the effective interest rate (yield, discount rate, market-rate, IRR) implicit in the terms of the new financial arrangement, taking into consideration the $969,454 pre-restructuring carrying amount (book value) of the old financial liability:**									
	Find the semi-annual rate which equates the PV of the new financial arrangement with the the above-calculated $969,454 PV of the old financial liability.									
3										
4	PVA, 6 semi-annual periods, ?%, $40,852:		$40,852	6	5.000009513%		$207,350			
5	PV, 6 semi-annual periods, ?%, $1,021,292:		$1,021,292	6	5.000009513%		762,103			
6	PV of the new bond:						$969,454			
7	Thus, ?% = 5.000009513%: this is the effective interest rate and is calculated using (i) 'interpolation', (ii) a spreadsheet's functionality such as MS Excel's (a) GOAL SEEK or (b) the '=IRR(values,guess)' function (see the IRR sheet in this application), or (iii) a financial calculator.									
8										
9	**Step 3(b): using this effective interest rate, prepare a table that amortizes the pre-restructuring unamortized cost of the existing financial liability to the maturity value of the new financial arrangement:**									
	The amortization table below proves that the above calculation of 5.000009513% per 6-months is correct (see also the IRR sheet in this application). Use this table to assist you when recording interest expense during the new financial arrangement's life.									
10										

11	Beginning of period	Face value of the financial liability	Unamortized premium (discount) on the financial liability	Beginning of period amortized cost of the financial liability	CREDIT: 4.00% interest paid per 6 months.	DEBIT: 5.000009513% interest expense per 6 months.	CREDIT amortized cost of the financial liability	End of period amortized cost of the financial liability	End of period	
12	31-Dec-14	936,000	33,454	969,454	40,852	48,473	7,621	977,075	30-Jun-15	1
13	30-Jun-15	936,000	41,075	977,075	40,852	48,854	8,002	985,077	31-Dec-15	2
14	31-Dec-15	936,000	49,077	985,077	40,852	49,254	8,402	993,479	30-Jun-16	3
15	30-Jun-16	936,000	57,479	993,479	40,852	49,674	8,822	1,002,302	31-Dec-16	4
16	31-Dec-16	936,000	66,302	1,002,302	40,852	50,115	9,264	1,011,565	30-Jun-17	5
17	30-Jun-17	936,000	75,565	1,011,565	40,852	50,578	9,727	1,021,292	31-Dec-17	6

QUESTION 4 (20 marks)
Answer ALL parts to this question. Each part is independent.

<u>PART 1:</u> (5 marks)

a) What are the items that increase retained earnings?

Items that increase retained earnings are:

- **net income,**
- **prior period adjustments (error corrections),**
- **financial reorganization, and**
- **certain changes in accounting principle, and**
- **AOCI recycled upon disposal of a *FV-OCI-with-recycling-investment*.**

b) What are the items that decrease retained earnings?

Items that decrease retained earnings are:

- **net loss,**
- **cash, property and most stock dividends,**
- **some share retirement transactions,**
- **some treasury shares transactions,**
- **prior period adjustments (error corrections), and**
- **certain changes in accounting principl, and**
- **AOCI recycled upon disposal of a *FV-OCI-with-recycling-investment*.**

Question 4 (20 marks) (continued)
Answer ALL parts to this question. Each part is independent.

<u>PART 2:</u> (6 marks)

Waterford Corporation's last year-end balance sheet reported the following in its shareholders' equity section:

Common shares, no par, outstanding 5,000 shares	$115,000
Retained earnings	200,000

The following transactions occurred this year:
(a) Purchased 70 common shares at $30 per share, to be held as treasury shares.
(b) Sold 10 of the treasury shares at $16 per share.
(c) Sold the remaining treasury shares at $32 per share.

Required

Prepare Waterford Corporation's journal entries for these transactions.

(a)	**Treasury Shares (70 x $30).....**	**2,100**	
	Cash		**2,100**
(b)	**Cash (10 x $16) .....**	**160**	
	Retained Earnings……..		**140**
	Treasury Shares (10 x $30).....		**300**
(c)	**Cash (60 x $32) .....**	**1,920**	
	Treasury Shares (60 x $30).....		**1,800**
	Contributed Surplus……..		**120**

Question 4 (20 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 3: (9 marks)

Macao Corp. reported the following amounts in the shareholders' equity section of its December 31, 2013 statement of financial position:

Preferred shares, $8 dividend (10,000 shares authorized, 2,000 shares issued)	$200,000
Common shares (100,000 authorized, 25,000 issued)	100,000
Contributed surplus	155,000
Retained earnings	250,000
Accumulated other comprehensive income	75,000
Total	$780,000

During 2014, the company had the following transactions that affect shareholders' equity.

1. January 4, 2014: Paid the annual 2013 $8 per share dividend on preferred shares and a $3 per share dividend on common shares. These dividends had been declared on December 31, 2013.
2. February 12, 2014: Purchased 3,700 shares of its own outstanding common shares for $35 per share and cancelled them.
3. January 1, 2014: Issued 1,000 preferred shares at $105 per share.
4. June 12, 2014: Declared a 10% stock dividend on the outstanding common shares when the shares were selling for $45 per share.
5. July 12, 2014: Issued the stock dividend.
6. December 14, 2014: Declared the annual 2014 $8 per share dividend on preferred shares and a $2 per share dividend on common shares. These dividends are payable in 2015.

The $155,000 contributed surplus arose from net excess of proceeds over cost on a previous cancellation of common shares. Total assets at December 31, 2013, were $940,000, and total assets at December 31, 2014, were $916,000. The company follows IFRS.

Required

Prepare journal entries to record the transactions above.

1.	**Dividends Payable**		
	(Preferred - 2,000 X $8)	**16,000**	
	Dividends Payable		
	(Common - 25,000 X $3)	**75,000**	
	Cash		**91,000**
2.	**Common Shares**	**14,800**	
	Contributed Surplus (common)	**114,700**	
	Cash (3,700 X $35)		**129,500**
	($100,000 / 25,000 X 3,700 = $14,800)		
3.	**Cash (1,000 X $105)**	**105,000**	
	Preferred Shares		**105,000**
4.	**Retained Earnings**	**95,850**	
	Common Stock Dividends Distributable		**95,850**
	[(25,000 – 3,700) X 10% = 2,130 X $45]		
5.	**Common Stock Dividends Distributable**	**95,850**	
	Common Shares		**95,850**
6.	**Retained Earnings**	**70,860**	
	Dividends Payable (Preferred - 3,000 X $8)		**24,000**
	Dividends Payable [(Common - 25,000 – 3,700 + 2,130) X $2]		**46,860**

Financial Tables

Table 2: PRESENT VALUE of $1.00 that is received in the future.

Period/Per	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.9900990	0.9803922	0.9708738	0.9615385	0.9523810	0.9433962	0.9345794	0.9259259	0.9174312	0.9090909	0.9009009	0.8928571
2	0.9802960	0.9611688	0.9425959	0.9245562	0.9070295	0.8899964	0.8734387	0.8573388	0.8416800	0.8264463	0.8116224	0.7971939
3	0.9705901	0.9423223	0.9151417	0.8889964	0.8638376	0.8396193	0.8162979	0.7938322	0.7721835	0.7513148	0.7311914	0.7117802
4	0.9609803	0.9238454	0.8884870	0.8548042	0.8227025	0.7920937	0.7628952	0.7350299	0.7084252	0.6830135	0.6587310	0.6355181
5	0.9514657	0.9057308	0.8626088	0.8219271	0.7835262	0.7472582	0.7129862	0.6805832	0.6499314	0.6209213	0.5934513	0.5674269
6	0.9420452	0.8879714	0.8374843	0.7903145	0.7462154	0.7049605	0.6663422	0.6301696	0.5962673	0.5644739	0.5346408	0.5066311
7	0.9327181	0.8705602	0.8130915	0.7599178	0.7106813	0.6650571	0.6227497	0.5834904	0.5470342	0.5131581	0.4816584	0.4523492
8	0.9234832	0.8534904	0.7894092	0.7306902	0.6768394	0.6274124	0.5820091	0.5402689	0.5018663	0.4665074	0.4339265	0.4038832
9	0.9143398	0.8367553	0.7664167	0.7025867	0.6446089	0.5918985	0.5439337	0.5002490	0.4604278	0.4240976	0.3909248	0.3606100
10	0.9052870	0.8203483	0.7440939	0.6755642	0.6139133	0.5583948	0.5083493	0.4631935	0.4224108	0.3855433	0.3521845	0.3219732
11	0.8963237	0.8042630	0.7224213	0.6495809	0.5846793	0.5267875	0.4750928	0.4288829	0.3875329	0.3504939	0.3172833	0.2874761
12	0.8874492	0.7884932	0.7013799	0.6245970	0.5568374	0.4969694	0.4440120	0.3971138	0.3555347	0.3186308	0.2858408	0.2566751
13	0.8786626	0.7730325	0.6809513	0.6005741	0.5303214	0.4688390	0.4149644	0.3676979	0.3261786	0.2896644	0.2575143	0.2291742
14	0.8699630	0.7578750	0.6611178	0.5774751	0.5050680	0.4423010	0.3878172	0.3404610	0.2992465	0.2633313	0.2319948	0.2046198
15	0.8613495	0.7430147	0.6418619	0.5552645	0.4810171	0.4172651	0.3624460	0.3152417	0.2745380	0.2393920	0.2090043	0.1826963
16	0.8528213	0.7284458	0.6231669	0.5339082	0.4581115	0.3936463	0.3387346	0.2918905	0.2518698	0.2176291	0.1882922	0.1631217
17	0.8443775	0.7141626	0.6050164	0.5133732	0.4362967	0.3713644	0.3165744	0.2702690	0.2310732	0.1978447	0.1696326	0.1456443
18	0.8360173	0.7001594	0.5873946	0.4936281	0.4155207	0.3503438	0.2958639	0.2502490	0.2119937	0.1798588	0.1528222	0.1300396
19	0.8277399	0.6864308	0.5702860	0.4746424	0.3957340	0.3305130	0.2765083	0.2317121	0.1944897	0.1635080	0.1376776	0.1161068
20	0.8195445	0.6729713	0.5536758	0.4563869	0.3768895	0.3118047	0.2584190	0.2145482	0.1784309	0.1486436	0.1240339	0.1036668
21	0.8114302	0.6597758	0.5375493	0.4388336	0.3589424	0.2941554	0.2415131	0.1986557	0.1636981	0.1351306	0.1117423	0.0925596
22	0.8033962	0.6468390	0.5218925	0.4219554	0.3418499	0.2775051	0.2257132	0.1839405	0.1501817	0.1228460	0.1006687	0.0826425
23	0.7954418	0.6341559	0.5066917	0.4057263	0.3255713	0.2617973	0.2109469	0.1703153	0.1377814	0.1116782	0.0906925	0.0737880
24	0.7875661	0.6217215	0.4919337	0.3901215	0.3100679	0.2469785	0.1971466	0.1576993	0.1264049	0.1015256	0.0817050	0.0658821
25	0.7797684	0.6095309	0.4776056	0.3751168	0.2953028	0.2329986	0.1842492	0.1460179	0.1159678	0.0922960	0.0736081	0.0588233
26	0.7720480	0.5975793	0.4636947	0.3606892	0.2812407	0.2198100	0.1721955	0.1352018	0.1063925	0.0839055	0.0663136	0.0525208
27	0.7644039	0.5858620	0.4501891	0.3468166	0.2678483	0.2073680	0.1609304	0.1251868	0.0976078	0.0762777	0.0597420	0.0468936
28	0.7568356	0.5743746	0.4370768	0.3334775	0.2550936	0.1956301	0.1504022	0.1159137	0.0895484	0.0693433	0.0538216	0.0418693
29	0.7493421	0.5631123	0.4243464	0.3206514	0.2429463	0.1845567	0.1405628	0.1073275	0.0821545	0.0630394	0.0484879	0.0373833
30	0.7419229	0.5520709	0.4119868	0.3083187	0.2313774	0.1741101	0.1313671	0.0993773	0.0753711	0.0573086	0.0436828	0.0333779
31	0.7345771	0.5412460	0.3999871	0.2964603	0.2203595	0.1642548	0.1227730	0.0920160	0.0691478	0.0520987	0.0393539	0.0298017
32	0.7273041	0.5306333	0.3883370	0.2850579	0.2098662	0.1549574	0.1147411	0.0852000	0.0634384	0.0473624	0.0354540	0.0266087
33	0.7201031	0.5202287	0.3770262	0.2740942	0.1998725	0.1461862	0.1072347	0.0788889	0.0582003	0.0430568	0.0319405	0.0237577
34	0.7129733	0.5100282	0.3660449	0.2635521	0.1903548	0.1379115	0.1002193	0.0730453	0.0533948	0.0391425	0.0287752	0.0212123
35	0.7059142	0.5000276	0.3553834	0.2534155	0.1812903	0.1301052	0.0936629	0.0676345	0.0489861	0.0355841	0.0259236	0.0189395
36	0.6989249	0.4902232	0.3450324	0.2436687	0.1726574	0.1227408	0.0875355	0.0626246	0.0449413	0.0323492	0.0233546	0.0169103
37	0.6920049	0.4806109	0.3349829	0.2342968	0.1644356	0.1157932	0.0818088	0.0579857	0.0412306	0.0294083	0.0210402	0.0150985
38	0.6851534	0.4711872	0.3252262	0.2252854	0.1566054	0.1092389	0.0764569	0.0536905	0.0378262	0.0267349	0.0189551	0.0134808
39	0.6783697	0.4619482	0.3157535	0.2166206	0.1491480	0.1030555	0.0714550	0.0497134	0.0347030	0.0243044	0.0170767	0.0120364
40	0.6716531	0.4528904	0.3065568	0.2082890	0.1420457	0.0972222	0.0667804	0.0460309	0.0318376	0.0220949	0.0153844	0.0107468

Table 4: PRESENT VALUE of Annuity of $1.00 in arrears.												
Period/Per	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.990099	0.980392	0.970874	0.961538	0.952381	0.943396	0.934579	0.925926	0.917431	0.909091	0.900901	0.892857
2	1.970395	1.941561	1.913470	1.886095	1.859410	1.833393	1.808018	1.783265	1.759111	1.735537	1.712523	1.690051
3	2.940985	2.883883	2.828611	2.775091	2.723248	2.673012	2.624316	2.577097	2.531295	2.486852	2.443715	2.401831
4	3.901966	3.807729	3.717098	3.629895	3.545951	3.465106	3.387211	3.312127	3.239720	3.169865	3.102446	3.037349
5	4.853431	4.713460	4.579707	4.451822	4.329477	4.212364	4.100197	3.992710	3.889651	3.790787	3.695897	3.604776
6	5.795476	5.601431	5.417191	5.242137	5.075692	4.917324	4.766540	4.622880	4.485919	4.355261	4.230538	4.111407
7	6.728195	6.471991	6.230283	6.002055	5.786373	5.582381	5.389289	5.206370	5.032953	4.868419	4.712196	4.563757
8	7.651678	7.325481	7.019692	6.732745	6.463213	6.209794	5.971299	5.746639	5.534819	5.334926	5.146123	4.967640
9	8.566018	8.162237	7.786109	7.435332	7.107822	6.801692	6.515232	6.246888	5.995247	5.759024	5.537048	5.328250
10	9.471305	8.982585	8.530203	8.110896	7.721735	7.360087	7.023582	6.710081	6.417658	6.144567	5.889232	5.650223
11	10.367628	9.786848	9.252624	8.760477	8.306414	7.886875	7.498674	7.138964	6.805191	6.495061	6.206515	5.937699
12	11.255077	10.575341	9.954004	9.385074	8.863252	8.383844	7.942686	7.536078	7.160725	6.813692	6.492356	6.194374
13	12.133740	11.348374	10.634955	9.985648	9.393573	8.852683	8.357651	7.903776	7.486904	7.103356	6.749870	6.423548
14	13.003703	12.106249	11.296073	10.563123	9.898641	9.294984	8.745468	8.244237	7.786150	7.366687	6.981865	6.628168
15	13.865053	12.849264	11.937935	11.118387	10.379658	9.712249	9.107914	8.559479	8.060688	7.606080	7.190870	6.810864
16	14.717874	13.577709	12.561102	11.652296	10.837770	10.105895	9.446649	8.851369	8.312558	7.823709	7.379162	6.973986
17	15.562251	14.291872	13.166118	12.165669	11.274066	10.477260	9.763223	9.121638	8.543631	8.021553	7.548794	7.119630
18	16.398269	14.992031	13.753513	12.659297	11.689587	10.827603	10.059087	9.371887	8.755625	8.201412	7.701617	7.249670
19	17.226008	15.678462	14.323799	13.133939	12.085321	11.158116	10.335595	9.603599	8.950115	8.364920	7.839294	7.365777
20	18.045553	16.351433	14.877475	13.590326	12.462210	11.469921	10.594014	9.818147	9.128546	8.513564	7.963328	7.469444
21	18.856983	17.011209	15.415024	14.029160	12.821153	11.764077	10.835527	10.016803	9.292244	8.648694	8.075070	7.562003
22	19.660379	17.658048	15.936917	14.451115	13.163003	12.041582	11.061240	10.200744	9.442425	8.771540	8.175739	7.644646
23	20.455821	18.292204	16.443608	14.856842	13.488574	12.303379	11.272187	10.371059	9.580207	8.883218	8.266432	7.718434
24	21.243387	18.913926	16.935542	15.246963	13.798642	12.550358	11.469334	10.528758	9.706612	8.984744	8.348137	7.784316
25	22.023156	19.523456	17.413148	15.622080	14.093945	12.783356	11.653583	10.674776	9.822580	9.077040	8.421745	7.843139
26	22.795204	20.121036	17.876842	15.982769	14.375185	13.003166	11.825779	10.809978	9.928972	9.160945	8.488058	7.895660
27	23.559608	20.706898	18.327031	16.329586	14.643034	13.210534	11.986709	10.935165	10.026580	9.237223	8.547800	7.942554
28	24.316443	21.281272	18.764108	16.663063	14.898127	13.406164	12.137111	11.051078	10.116128	9.306567	8.601622	7.984423
29	25.065785	21.844385	19.188455	16.983715	15.141074	13.590721	12.277674	11.158406	10.198283	9.369606	8.650110	8.021806
30	25.807708	22.396456	19.600441	17.292033	15.372451	13.764831	12.409041	11.257783	10.273654	9.426914	8.693793	8.055184
31	26.542285	22.937702	20.000428	17.588494	15.592811	13.929086	12.531814	11.349799	10.342802	9.479013	8.733146	8.084986
32	27.269589	23.468335	20.388766	17.873551	15.802677	14.084043	12.646555	11.434999	10.406240	9.526376	8.768600	8.111594
33	27.989693	23.988564	20.765792	18.147646	16.002549	14.230230	12.753790	11.513888	10.464441	9.569432	8.800541	8.135352
34	28.702666	24.498592	21.131837	18.411198	16.192904	14.368141	12.854009	11.586934	10.517835	9.608575	8.829316	8.156564
35	29.408580	24.998619	21.487220	18.664613	16.374194	14.498246	12.947672	11.654568	10.566821	9.644159	8.855240	8.175504
36	30.107505	25.488842	21.832252	18.908282	16.546852	14.620987	13.035208	11.717193	10.611763	9.676508	8.878594	8.192414
37	30.799510	25.969453	22.167235	19.142579	16.711287	14.736780	13.117017	11.775179	10.652993	9.705917	8.899635	8.207513
38	31.484663	26.440641	22.492462	19.367864	16.867893	14.846019	13.193473	11.828869	10.690820	9.732651	8.918590	8.220993
39	32.163033	26.902589	22.808215	19.584485	17.017041	14.949075	13.264928	11.878582	10.725523	9.756956	8.935666	8.233030
40	32.834686	27.355479	23.114772	19.792774	17.159086	15.046297	13.331709	11.924613	10.757360	9.779051	8.951051	8.243777