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Mid Term Exam (SUGGESTED SOLUTIONS)
Intermediate Financial Accounting II
Winter 2016
ADM3340 Section M

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	Goodwill; acquisition.	/8
	1: part 2	Intangibles & Goodwill: impairment under ASPE	/6
	1: part 3	Intangibles & Goodwill: impairment under IFRS	/8
Ch 13	2: part 1	ARO	/4
	2: part 2	Premiums	/9
	2: part 3	Liability: definition	/3
	2: part 4	Note payable	/4
Ch 14	3: part 1	Bond liabilities: issuance	/10
	3: part 2	Bond liabilities: retirement	/13
	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. Each part is independent.

PART 1: (8 marks)

On July 31, 2014, Delhi Corporation purchased the net assets of Phuket Company by paying $204,000 cash to Phuket Company. At July 31, 2014, the statement of financial position of Phuket Company was as follows:

Cash	$ 75,000	Accounts payable	$300,000
Accounts receivable	102,000	Shareholders' Equity	239,000
Inventory	98,000		
Land	50,000		
Buildings (net)	75,000		
Equipment (net)	90,000		
Trademarks (net)	49,000		
	$539,000		$539,000

The recorded amounts all approximate current values except for land (worth $60,000), inventory (worth $125,000), and trademarks (worthless). The receivables are shown net of an allowance for doubtful accounts of $12,000. The amounts for buildings, equipment, and trademarks are shown net of accumulated amortization of $14,000, $23,000, and $47,000, respectively.

Required

Prepare the July 31, 2014 journal entry for Delhi Corporation to record the purchase.

Note that a purchase price of $204,000 is less than the fair value of the net assets of Phuket, resulting in negative goodwill of $23,000. Current standards (IFRS 3.34-36 & ASPE 1582.36) require the excess to be recognized as a gain in net income. However, this cannot be done without a thorough reassessment of all the variables, values, and measurement procedures used that resulted in this gain. [see Page 65 of RIM's 2011 Annual Report on ADM3340's BlackBoard for a real example of a "bargain purchase"].

If the review reveals no overstatement of assets, record as follows:

	Cash	**75,000**	
	Accounts Receivable	**114,000**	
	Inventory	**125,000**	
	Land	**60,000**	
	Buildings	**75,000**	
	Equipment	**90,000**	
	Allowance for Doubtful Accounts		**12,000**
	Accounts Payable		**300,000**
	Cash		**204,000**
	Gain		**23,000**

Alternatively (not required in your solution): if the review reveals an overstatement of inventory of $23,000, say, record as follows:

Cash	**75,000**	
Accounts Receivable	**114,000**	
Inventory ($125,000 – $23,000)	**102,000**	
Land	**60,000**	
Buildings	**75,000**	
Equipment	**90,000**	
Allowance for Doubtful Accounts		**12,000**
Accounts Payable		**300,000**
Cash		**204,000**

QUESTION 1 (20 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 2: (6 marks)

	Limited-Life Intangible Assets.	Indefinite-Life Intangible Assets.	Goodwill [the values below pertain to the Reporting Unit, including its Goodwill].
Carrying amount	$8,000,000	$8,000,000	$32,000,000
Fair value	$7,210,000	$7,210,000	$32,300,000
Undiscounted future cash flows from use and eventual sale	$9,000,000	$7,600,000	$40,000,000
Present value of the future cash flows from use and eventual sale	$6,000,000	$7,200,000	$31,500,000
Costs to sell	$40,000	$40,000	$500,000

Required
Using the above data complete the following grid, applying ASPE:

	Under ASPE		
	Limited-Life Intangible Assets.	Indefinite-Life Intangible Assets.	Goodwill [the values below pertain to the Reporting Unit, including its Goodwill].
Is the asset impaired? Show supporting calculations.	No: the impairment test indicates the asset is not impaired because its carrying amount of **$8,000,000 is less than $9,000,000**, the undiscounted cash flows expected to result from its use and eventual disposition.	Yes: the impairment test indicates the asset is impaired because its carrying amount of **$8,000,000 exceeds $7,210,000, its fair value**	No: the impairment test indicates impairment because the carrying amount of **$32,000,000** does not exceed **$32,300,000**, the fair value.
If the asset is deemed to be impaired, what is the amount of the impairment loss to be recognized in the income statement? Show supporting calculations.	No impairment loss is recognized:.	An impairment loss of **$790,000** is recognized: this is the amount by which the $8,000,000 carrying amount exceeds the $7,210,000 fair value.	No impairment loss is recognized:.
	[Comment: under ASPE, for (i) PP&E, (ii) Limited-Life Intangible Assets, and (iii) Indefinite-Life Intangible Assets and Goodwill, an impairment loss is measured as the excess of the carrying amount over the fair value.]		
(a) Can an impairment loss reversal be recognized in a subsequent period, and if so, (b) is there a limit to the reversal? Assume the company uses the cost model (i.e., not the revaluation model) subsequent to acquisition.	(a) No. ASPE Section 3063.06: An impairment loss shall not be reversed if the fair value subsequently increases. (b) Not applicable.		

QUESTION 1 (20 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 3: (8 marks)

	Limited-Life Intangible Assets.	Indefinite-Life Intangible Assets.	Goodwill [the values below pertain to the Cash-Generating-Unit, including its Goodwill].
Carrying amount	$8,000,000	$8,000,000	$32,000,000
Fair value	$7,210,000	$7,210,000	$32,300,000
Undiscounted future cash flows from use and eventual sale	$9,000,000	$7,600,000	$40,000,000
Present value of the future cash flows from use and eventual sale	$6,000,000	$7,200,000	$31,500,000
Costs to sell	$40,000	$40,000	$500,000

Required:
Using the above data complete the following grid, applying IFRS:

	Under IFRS		
	Limited-Life Intangible Assets.	Indefinite-Life Intangible Assets	Goodwill [the values below pertain to the Cash-Generating-Unit, including its Goodwill].
Is the asset impaired? Show supporting calculations.	Yes, because the carrying amount of **$8,000,000 exceeds** the recoverable amount (defined by IAS 36.6) of **$7,170,000** [which is the higher of the fair value $7,210,000 less the costs to sell of $40,000, and the present value of the future cash flows from use and eventual sale $6,000,000].	Yes, because the carrying amount of **$8,000,000 exceeds** the recoverable amount (defined by IAS 36.6) of **$7,200,000** [which is the higher of the fair value $7,210,000 less the costs to sell of $40,000, and the present value of the future cash flows from use and eventual sale $7,200,000].	Yes, because the carrying amount of **$32,000,000 exceeds** the recoverable amount (defined by IAS 36.6) of **$31,800,000** [which is the higher of the fair value $32,300,000 less the costs to sell of $500,000, and the present value of the future cash flows from use and eventual sale $31,500,000].
If the asset is deemed to be impaired, what is the amount of the impairment loss to be recognized in the income statement? Show supporting calculations.	**$830,,000** [= the carrying amount of $8,000,000 less the recoverable amount of $7,170,000].	**$800,000** [= the carrying amount of $8,000,000 less the recoverable amount of $7,200,000.	**$200,000** [= the carrying amount of $32,000,000 less the recoverable amount of **$31,800,000** . The $200,000 loss is allocated to the assets in accordance with IAS 36.104 and IAS 36.105.
(a) Can an impairment loss reversal be recognized in a subsequent period, and if so, (b) Is there a limit to the reversal? Assume the company uses the cost model (i.e., not the revaluation model) subsequent to acquisition.	(a) Yes, under both the cost and revaluation models. (b) IAS 36.117: The increased carrying amount of an asset other than goodwill attributable to a reversal of an impairment loss shall not exceed the carrying amount that would have been determined less the amortisation or depreciation) had no impairment loss been recognised for the asset in prior years.	(a) Yes, under both the cost and revaluation models. (b) IAS 36.117: The increased carrying amount of an asset other than goodwill attributable to a reversal of an impairment loss shall not exceed the carrying amount that would have been determined less the amortisation or depreciation) had no impairment loss been recognised for the asset in prior years. [Comment: remember that an indefinite-life asset would have $0 accumulated amortization].	(a) No: IAS 36.124: An impairment loss recognised for goodwill shall not be reversed in a subsequent period. IAS 36.125: IAS 38 Intangible Assets prohibits the recognition of internally generated goodwill. Any increase in the recoverable amount of goodwill in the periods following the recognition of an impairment loss for that goodwill is likely to be an increase in internally generated goodwill, rather than a reversal of the impairment loss recognised for the acquired goodwill. (b) Not applicable.

Comments in red not required in students' answers.

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

PART 1: (4 marks)

Chandimal Mines International Ltd discovered a new bauxite deposit, the Visakhapatnam Mine, and began production on January 1, 2016. The state requires mining companies to return the land to its natural state at the end of mining activity. Chandimal Mines International Ltd estimates that it will operate the mine for 25 years, at which time it will cost $25,000,000 for the land reclamation project. Chandimal Mines International Ltd uses an 8% discount rate. The company has adopted IFRS for its financial reporting.

Required (Show all supporting calculations)
(a) Record any obligation for land reclamation as at January 1, 2016.
(b) Record any entry required related to this obligation at December 31, 2016.

(a) January 1, 2016

Visakhapatnam Mine	**3,650,447**	
Asset Retirement Obligation		**3,650,447**

$3,650,447 is the present value of the $25,000,000 estimated cost discounted for 25 years at 8%.

(b) December 31, 2016

Accretion*/Interest Expense**	**292,036**	
Asset Retirement Obligation		**292,036**

$292,036 is the increase in the present value that occurs because you are one year closer to the expenditure. Present value of $25,000,000 discounted for 24 years at 8% ($3,942,483) less $3,650,447.
OR 3,650,447 x 8% = 292,036

*** ASPE**
**** IFRS**

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

PART 2: (9 marks)

In 2015 Rahane Corporation sold 1,000,000 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 $3.90 from the customer. Each box of pie mix is sold for $4.75 and Rahane estimates that $1.15 of the $4.75 sale price relates to the baking pan to be awarded. Rahane pays $5.15 per pan and $.95 for shipping and handling to the customer. Rahane estimates that 65% of the coupons will be redeemed even though only 97,500 coupons had been processed during 2015. Rahane follows IFRS and accounts for its promotional programs in accordance with the revenue approach.

Required (show all supporting calculations)

Prepare any necessary 2015 journal entries for Rahane Corporation to record revenue, the liability, and coupon redemptions.

Cash	**4,750,000**	
Sales Revenue (1,000,000 X $3.60)		**3,600,000**
Unearned Revenue (1,000,000 x $1.15)		**1,150,000**
Cash (97,500 X $3.90)	**380,250**	
Premium Expense (97,500 X [$5.15 + $.95 - $3.90])	**214,500**	
Inventory of Baking Pans (97,500 X $5.15)		**502,125**
Cash/Accounts Payable (97,500 X $.95)		**92,625**
Unearned Revenue (1,000,000 X $1.15 X 15%*)	**172,500**	
Sales Revenue		**172,500**

***97,500/(65% x 1,000,000) = 15%**

The calculations below are not required in your answer:

Boxes sold	**1,000,000**
Sale price per unit related to premium	**X $1.15**
Unearned revenue recorded in 2015	**$1,150,000**
Total coupons expected to be redeemed (1,000,000 x 65%)	**650,000**
Less: coupons redeemed during 2015	**97,500**
Coupons still to be redeemed, 31/12/15	**552,500**
Total coupons expected to be redeemed	**÷ 650,000**
% of unearned revenue to be earned after 2015	**85%**
Unearned revenue recorded in 2015	**$1,150,000**
% of unearned revenue to be earned after 2015	**X 85%**
Unearned revenue (adjusted), 31/12/15	**$977,500**
Total coupons redeemed in 2015	**97,500**
Cost per redemption [$5.15 + $.95 - $3.90]	**$2.20**
Premium expense	**$214,500**

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

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.**

PART 4 (4 marks)

"Around $1.7 trillion of euro-area government bonds with maturities longer than a year are trading with negative nominal yields." [Source: http://www.cnbc.com/2015/02/03/negative-yield-bonds-heres-whos-buying.html, viewed 15 February 2016]. Some corporate bonds are also offering negative yields.

On January 1, 2016 XYZ Company, an entity with a AAA rating, issued a 4% $1,000,000 two-year note payable, with interest payable each June 30 and December 31. Issuance proceeds were $1,123,061, providing investors with a minus 2% yield.

Required

Prepare the journal entry necessary at December 31, 2016 for this note payable.

Note payable (premium)…….	30,918	
Interest expense……		10,918
Cash……..		20,000

The following tables are not required in your answer:

Face value	$1,000,000	
Stated rate	4%	Interest is paid semi-annually.
Yield	-2%	per year.
Years	2	

PVA,$20,000, -1.00%, 4 periods.	$82,041
PV,$1,000,000, -1.00%, end of period 4.	$1,041,020
Fair value at issuance	$1,123,061

Period	Credit: Cash	Credit: 'Expense'	Debit: Note Payable (Premium)	Carrying value
1	$20,000	-$11,231	$31,231	$1,091,830
2	20,000	-$10,918	30,918	$1,060,912
3	20,000	-$10,609	30,609	$1,030,303
4	20,000	-$10,303	30,303	$1,000,000
	$80,000	-$43,061	$123,061	

QUESTION 3 (38 marks)
Answer ALL parts to this question. Each part is independent.

PART 1: (10 marks)
On September 1, 2016 BondBeagle Inc. issues $1,000,000 face value bonds. The bond date is July 1, 2016, and the bonds carry a coupon rate of 6% per year, payable semi-annually on July 1 and January 1. The bonds' maturity date is July 1, 2036. The bonds provide an annual yield of 4%.

BondBeagle Inc. uses the effective interest rate method to amortize any bond premium or discount. BondBeagle Inc.'s accounting year-end is February 28.

Required (you must show all supporting calculations, including an audit trail if using a financial calculator)
Prepare all of the relevant journal entries to record the bond issuance.

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

Reset Recalculate

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

TABLE 1 ISSUANCE

Screen		
	July 1, 2016	The closest preceding interest payment date to the issuance date
	2	Number of months (rounded to the nearest whole month) between the issuance date and its closest preceding interest payment date.
Issuance	**September 1, 2016**	**Date of issuance**
	4	Number of months (rounded to the nearest month) between the date of issuance and its first following interest payment date
I1	January 1, 2017	The first interest payment date after the issuance date
	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
I2	February 28, 2017	The first accounting year-end after the issuance date

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

Face value	$1,000,000		
Stated interest rate	6.00%	per year = 3.0000% semi-annually.	
Effective interest rate (Yield)	2.00%	semi-annually.	
Issue date	September 1, 2016, 2 months after July 1, 2016, the closest preceding interest payment date.		
Maturity date	July 1, 2036, 6 months after January 1, 2036, the closest preceding interest payment date.		
Accrued interest payable on the issuance date		10,000.00	= $1,000,000 x 6.0000% x 2/12 months
Bond proceeds, excluding any accrued interest and issuance costs (see detailed calculation below)		1,272,045.50	= $1,273,554 + [($1,269,028 - $1,273,554) x 2/6 months]
Face value of bonds		1,000,000.00	
Bond premium		272,045.50	= $1,272,046 - $1,000,000
Total proceeds on issuance, including accrued interest payable		1,282,045.50	= $1,272,046 + $10,000
The closest preceding interest payment date to the issuance date is		July 1, 2016	(2 months before September 1, 2016)
Issuance date		September 1, 2016	
The first interest payment date after the issuance date is		January 1, 2017	(4 months after September 1, 2016)

QUESTION 3 (38 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 1: (10 marks) (continued)

	If the bonds were issued on:	
	July 1, 2016	January 1, 2017
	There would be 40 semi-annual interest payments (240 months) between July 1, 2016 and the maturity date, July 1, 2036	There would be 39 semi-annual interest payments (234 months) between January 1, 2017 and the maturity date, July 1, 2036
Present value of the bond's 40.00 semi-annual interest payments of $30,000 (= $1,000,000 x 6.0000%/2) at 2.0000% effective interest rate [$820,664 = 27.35548 x $30,000]	820,664.40	
Present value of the maturity value of $1,000,000 at the end of 40.00 periods at 2.0000% effective interest rate [$452,890 = 0.45289 x $1,000,000]	452,890.00	
Present value of the bond's 39.00 semi-annual interest payments of $30,000 (= $1,000,000 x 6.0000%/2) at 2.0000% effective interest rate [$807,078 = 26.90259 x $30,000]		807,077.70
Present value of the maturity value of $1,000,000 at the end of 39.00 periods at 2.0000% effective interest rate [$461,950 = 0.46195 x $1,000,000]		461,950.00
Total	1,273,554.40	1,269,027.70
Bond proceeds, excluding any accrued interest and issuance cost, on September 01, 2016 (which lies between July 01, 2016 and January 01, 2017). $1,272,046 = $1,273,554 + {[($1,269,028 - $1,273,554)/6months] x 2months}	1,272,045.50	

Reset Recalculate

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

	B	C	D	E
2	September 01, 2016	Date of issuance	Dr	Cr
3				
4				
5	Cash		1,282,045.50	
6		Interest payable		10,000.00
7		Bonds payable		1,000,000.00
8		Bond premium		272,045.50
9				
10	To record the issuance of 20.00-year bonds, face value $1,000,000, stated interest rate 6.0000% per annum. The bond date is July 01, 2016 with interest paid semi-annually. There are 238 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.			

QUESTION 3 (38 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 2: (13 marks)

On March 1, 2016 BondBeagle Inc. issues $1,000,000 face value bonds. The bond date is March 1, 2016, and the bonds carry a coupon rate of 2% per year, payable semi-annually on March 1 and September 1. The bonds' maturity date is March 1, 2036 (these are 20 year bonds). Proceeds upon issuance were $726,445, and the bonds provide an annual yield of 4%.

BondBeagle Inc. uses the effective interest rate method to amortize any bond premium or discount. On July 31, 2025 BondBeagle Inc. retires 30% ($300,000 face value) of the bonds at 102.50% ($307,500), excluding accrued interest. BondBeagle Inc.'s accounting year-end is May 31.

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

Present all necessary journal entries on the date of retirement.

TABLE 2 RETIREMENT

Screen		
	March 1, 2025	The closest preceding interest payment date to the retirement date
	3	Number of months (rounded to the nearest month) between (a) the closest preceding interest payment date to the retirement date and (b) the closest preceding accounting year-end date to the retirement date
	May 31, 2025	The closest preceding accounting year-end date to the retirement date
	2	Number of months (rounded to the nearest month) between (a) the closest preceding accounting year-end date to the retirement date and (b) the date of retirement
Retirement	**July 31, 2025**	**Date of retirement**
	1	Number of months (rounded to the nearest whole month) between the retirement date and the first interest payment date after the retirement date
R1	September 1, 2025	The first interest payment date after the retirement date
	6	Number of months (rounded to the nearest month) between (a) the first interest payment date after the retirement date and (b) the second interest payment date after the retirement date
R2	March 1, 2026	The second interest payment date after the retirement date

Carry amount at March 1, 2025 = $823,419 = PVA, 22 periods, 2%, $10k = $176,580 + PVA, 22 periods, 2%, $1m = 646,839

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

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

Date of retirement July 31, 2025	Dr	Cr	
Interest expense	1,646.84		= $823,419 (net bond liability at beginning of March 02, 2025) x 2.000000% (semi-annual yield) x 2/6 months x 30.0000% retired.
Bond discount		646.84	= $1,647 - $1,000
Interest payable		1,000.00	= $1,000,000 x 30.0000% retired x 2/12 months x 2.0000%
To record interest expense incurred on 30.0000% of the bonds between May 31, 2025 (the closest preceding accounting year-end date to the retirement date) and July 31, 2025. Effective interest rate method. [Note: July 31, 2025 is neither an accounting year-end or a bond interest payment anniversary date.]			

Loss on retirement	58,857.14		= ($310,000 - $2,500 + $51,357) - ($300,000)
Interest payable	2,500.00		= $1,000 (see above journal entry) + $1,500 (= $1,000,000 x 30.0000% retired x 3/12 months x 2.0000% accrued at May 31, 2025) March 01, 2025 is the closest preceding interest payment date to the date of retirement.
Bond payable	300,000.00		= $1,000,000 x 30.0000% retired
Bond discount		51,357.14	= $176,581 x 30.00% (unamortized at beginning of March 02, 2025) - $1,617 [$1,617 = ($823,419 x 2.000000% yield x 5/6 x 30.00%) - ($1,000,000 x 1.0000% interest paid x 5/6 x 30.00%) amortization, March 01, 2025 to July 31, 2025 on the 30.00% retired)]. March 01, 2025 is the closest preceding interest payment date to the date of retirement.
Cash		310,000.00	= $307,500 (=$1,000,000 x 30.0000% x 102.5000%) + $1,000 accrued (as appears in the journal entry above) + $1,500 accrued at May 31, 2025
To record the retirement at 102.5000% of 20.00 year 2.0000% bonds, issued March 01, 2016, face value $300,000.			

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

QUESTION 3 (38 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 3: (15 marks)

On January 1, 2013 Debtor Limited issued a 4 year 6.00% $1,000,000 bond payable to Creditor Bank. Interest payment dates are June 30 and December 31 and the bonds were issued to provide a semi-annual yield of 4.00%. By December 2015 Debtor Limited is in financial difficulties and is about to miss the December 31, 2015 interest payment. Debtor Limited negotiates an arrangement with Creditor Bank whereby Creditor Bank agrees to waive the December 31, 2015 interest payment and to replace, effective December 31, 2015, the above bond with a 4 year $1,398,032 face value bond bearing 8.00% annual interest, payable semi-annually. Due to Debtor Limited's precarious situation, lenders would normally seek a semi-annual return of 6.00% 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 Debtor Limited's books that may be necessary on December 31, 2015. Support your answer with all necessary calculations. (5 marks)

(c) Assume this troubled debt restructuring is a *modification*. Prepare Debtor Limited's journal entry necessary on June 30, 2016 for its liability to Creditor Bank. Support your answer with all necessary calculations. (5 marks)

(a)

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 4 year bond at December 31, 2015, using the old bond's historic 4.00% semi-annual yield:					
3	PV Annuity, 2 semi-annual periods, 4.00%, $30,000:		$30,000	4.00%	2	1.886094675	$56,583
4	PV, 2 semi-annual periods, 4.00%, $1,000,000:		$1,000,000	4.00%	2	0.924556213	924,556
5							981,139
6	December 31, 2015 interest payable:						30,000
7	PV of the old financial liability owed at December 31, 2015, using its 4.00% original effective interest rate:						$1,011,139
8	The unamortized discount on the old financial liability:						$18,861
9							
10	Step 1(b)	Calculate the PV of the new 4 year financing arrangement at December 31, 2015, using the old bond's historic 4.00% semi-annual yield:					
11	PV Annuity, 8 semi-annual periods, 4.00%, $55,921:		$55,921	4.00%	8	6.732744875	$376,504
12	PV, 8 semi-annual periods, 4.00%, $1,398,032:		$1,398,032	4.00%	8	0.730690205	1,021,528
13	PV of the new financiing arrangement at December 31, 2015, using the old financial liability's 4.00% original effective interest rate:						$1,398,032
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 ($1,011,139 - $1,398,032):						$386,893
17	Difference as a percentage of $1,011,139:						38.26%
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 $1,011,139 is at least 10% (i) the old financial liability must be derecognized, (ii) a new financial liability recognized, and (iii) a gain/loss recorded.						

(b)

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 4 year financial arrangement at 31/12/2015, using the prevailing 6.00% semi-annual effective interest rate for financial liabilities with similar risk & maturity.						
3	PV Annuity, 8 semi-annual periods, 6.00%, $55,921:		$55,921	6.00%	8	6.209793811	$347,260
4	PV, 8 semi-annual periods, 6.00%, $1,398,032:		$1,398,032	6.00%	8	0.627412371	877,143
5	PV of the new bond:						$1,224,402
6	Face value of the new 4 year bond:						1,398,032
7	Therefore, the discount on the (new) bond is:						$173,630
8							
9	Step 3(b): record the 31/12/2015 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			1,000,000			
12		(Old) Bond discount			18,861	[=$1,000,000 - $981,139].	
13	Interest payable (on Old Bond)			30,000			
14	(New) Bond discount			173,630			
15		(New) Bond payable			1,398,032		
16	Loss on bond restructuring			213,263		[= $1,011,139 - $1,224,402].	

QUESTION 3 (38 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 3: (15 marks) (continued)

(c)

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 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 $1,011,139 pre-restructuring carrying amount (book value) of the old financial liability:						
3	Find the semi-annual rate which equates the PV of the new financial arrangement with the the above-calculated $1,011,139 PV of the old financial liability.						
4	PVA, 8 semi-annual periods, ?%, $55,921:		$55,921	8	9.000003729%		$309,514
5	PV, 8 semi-annual periods, ?%, $1,398,032:		$1,398,032	8	9.000003729%		701,625
6	PV of the new bond:						$1,011,139
7	Thus, ?% = 9.000003729%: 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.						

30/06/2015

Interest expense…… 91,003

Bond discount [or Bond payable]…… 35,081

Cash…… 55,921

The following tables are not required in your solution.

	A	B	C	D	E	F	G
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:						
10	The amortization table below proves that the above calculation of 9.000003729% 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.						
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: 9.000003729% interest expense per 6 months.	CREDIT amortized cost of the financial liability
12	31-Dec-15	1,030,000	-18,861	1,011,139	55,921	91,003	35,081
13	30-Jun-16	1,030,000	16,220	1,046,220	55,921	94,160	38,239
14	31-Dec-16	1,030,000	54,459	1,084,459	55,921	97,601	41,680
15	30-Jun-17	1,030,000	96,139	1,126,139	55,921	101,353	45,431
16	31-Dec-17	1,030,000	141,570	1,171,570	55,921	105,441	49,520
17	30-Jun-18	1,030,000	191,090	1,221,090	55,921	109,898	53,977
18	31-Dec-18	1,030,000	245,067	1,275,067	55,921	114,756	58,835
19	30-Jun-19	1,030,000	303,902	1,333,902	55,921	120,051	64,130

	A	B	C	D	E	F	G	H	I	J
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:									
10	The amortization table below proves that the above calculation of 9.000003729% 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.									
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: 9.000003729% 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-15	1,030,000	-18,861	1,011,139	55,921	91,003	35,081	1,046,220	30-Jun-16	1
13	30-Jun-16	1,030,000	16,220	1,046,220	55,921	94,160	38,239	1,084,459	31-Dec-16	2
14	31-Dec-16	1,030,000	54,459	1,084,459	55,921	97,601	41,680	1,126,139	30-Jun-17	3
15	30-Jun-17	1,030,000	96,139	1,126,139	55,921	101,353	45,431	1,171,570	31-Dec-17	4
16	31-Dec-17	1,030,000	141,570	1,171,570	55,921	105,441	49,520	1,221,090	30-Jun-18	5
17	30-Jun-18	1,030,000	191,090	1,221,090	55,921	109,898	53,977	1,275,067	31-Dec-18	6
18	31-Dec-18	1,030,000	245,067	1,275,067	55,921	114,756	58,835	1,333,902	30-Jun-19	7
19	30-Jun-19	1,030,000	303,902	1,333,902	55,921	120,051	64,130	1,398,032	31-Dec-19	8

	A	B	C	D	E
52	Totals		447,370	834,263	386,893
53	Total expense if the financial arrangement is NOT deemed SUBSTANTIAL (i.e., no derecognition of the old financial liability is required):				834,263
54	Total expense if the financial arrangement results in the derecognition of the old financial liability (i.e., the financial arrangement is deemed SUBSTANTIAL) [$447,370 interest payments+ $173,630 (new) bond discount (see Row 62 on the 'Step3_Substantial' sheet)]:				621,000
55	Difference. [Remember: this equals the loss that would be recognized if old financial liability is derecognized]:				-213,263

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.

PART 2: (6 marks)

Afridi 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 Afridi 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)

Gilchrist Corp. reported the following amounts in the shareholders' equity section of its December 31, 2014 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 2015, the company had the following transactions that affect shareholders' equity.

1. January 4, 2015: Paid the annual 2014 $8 per share dividend on preferred shares and a $3 per share dividend on common shares. These dividends had been declared on December 31, 2014.
2. February 12, 2015: Purchased 3,700 shares of its own outstanding common shares for $35 per share and cancelled them.
3. January 1, 2015: Issued 1,000 preferred shares at $105 per share.
4. June 12, 2015: Declared a 10% stock dividend on the outstanding common shares when the shares were selling for $45 per share.
5. July 12, 2015: Issued the stock dividend.
6. December 14, 2015: Declared the annual 2015 $8 per share dividend on preferred shares and a $2 per share dividend on common shares. These dividends are payable in 2016.

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, 2014, were $940,000, and total assets at December 31, 2015, 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