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Mid Term Exam (SUGGESTED SOLUTIONS)
Intermediate Financial Accounting II
Winter 2018
ADM3340 Sections M and N

Section	Class time/day	Tick one
Section N	Wednesday 100pm & Friday 11:30am	
Section M	Friday 5:30pm	

Name: _____ **ID#:** _____

INSTRUCTIONS

- Write your name and student ID number above and indicate your section.
- 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 2½ hours. (see the Statement of Academic integrity on page 2 of this exam).
- This examination **"SUGGESTED SOLUTION"** comprises 3 multi-part questions over 20 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 17 and 18.
- 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	Intangible assets and goodwill	/6
	1: part 2	Impairment, limited life intangible, IFRS.	/6
	1: part 3	Impairment, limited life intangible, ASPE.	/5
	1: part 4	Goodwill.	/7
Ch 13	2: part 1	ARO.	/6
	2: part 2	Premiums.	/8
	2: part 3	Liability: definition.	/3
	2: part 4	Financial liability: definition.	/3
	2: part 5	Contingencies.	/9
	2: part 6	Blended note payable.	/9
Ch 14	3: part 1	Bond liabilities: issuance.	/10
	3: part 2	Bond liabilities: retirement.	/14
	3: part 3	Bond liabilities: exchange.	/14
	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 (24 marks)
Answer ALL parts to this question. Each part is independent.

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)

(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 (24 marks) (continued)
Answer ALL parts to this question. Each part is independent.

PART 2: (6 marks)

At the end of 2017, Doneen Corporation owns a patent with a remaining estimated useful life of 10 years and a carrying amount of $530,000. Doneen expects undiscounted future cash flows from this patent to total $535,000. The patent's fair value is $425,000 and disposal costs are estimated to be nil. The patent's discounted cash flows (that is, value in use) are estimated to be $475,000.

Required (you must show all supporting calculations)

Assume Doneen prepares financial statements in accordance with IFRS.

(a) Determine if the patent is impaired at the end of 2017 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 2018. Determine if the patent is impaired at the end of 2018 and prepare any related entries that are necessary. (2 marks)

(c) Explain how the answer to (b) would change if the patent's fair value is $500,000 at the end of 2018. (2 marks)

PART 3: (5 marks)

Required (you must show all supporting calculations)

Assume Doneen (see Part 2 above) prepares financial statements in accordance with ASPE.

(a) Determine if the patent is impaired at the end of 2017 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 2018. Determine if the patent is impaired at the end of 2018 and prepare any related entries that are necessary. (2 marks)

(c) Explain how the answer to (b) would change if the patent's fair value is $500,000 at the end of 2018. (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 patent is impaired at the end of 2017 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 – Patents		**55,000**

After this j/e on 31/12/2017 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 2018 = 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 – Patents	**22,500**	
Recovery of Loss from Impairment		**22,500**

Part 2(c) **If the patent's fair value is $500,000 at the end of 2018, the recoverable amount at the end of 2018 would be $500,000 (since recoverable amount is the higher of value in use and fair value less costs to sell). However, the patent 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 – Patents	**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 2018, 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 patent'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 patent.**

QUESTION 1 (24 marks) (continued)
Answer ALL parts to this question.

PART 4: (7 marks)

On January 31, 2018, Fukuyama Corporation purchased the net assets of Sparwood Company by paying $214,000 cash to Sparwood Company. At January 31, 2018, the statement of financial position of Sparwood Company was as follows:

Cash	$ 75,000	Accounts payable	$200,000
Accounts receivable	102,000	8% bonds payable (due 31/12/2025)	100,000
Inventory	98,000	Shareholders' Equity	239,000
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 (fair value = $60,000), inventory (fair value = $125,000), trademarks (worthless), and 8% bonds payable (fair value = $90,000). 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 January 31, 2018 journal entry for Fukuyama Corporation to record the purchase.

Note that a purchase price of $214,000 is less than the fair value of the net assets of Sparwood, 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 Brightspace for a real-life 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		200,000
8% Bonds Payable (due 31/12/2025)		90,000
Cash		214,000
Gain		23,000

Alternatively (not required in your solution): if the review reveals an overstatement of inventory of $21,000, say, record as follows:

Cash	75,000	
Accounts Receivable	114,000	
Inventory ($125,000 – $21,000)	104,000	
Land	60,000	
Buildings	75,000	
Equipment	90,000	
Allowance for Doubtful Accounts		12,000
Accounts Payable		200,000
8% Bonds Payable (due 31/12/2025)		90,000
Cash		214,000
Gain		2,000

QUESTION 2 (38 marks)

Answer ALL parts to this question. Each part is independent.

PART 1: (6 marks)

The Bigfoot Tank Depot was opened at a cost of $100 million by PB Oil and Gas Corporation on January 1, 2018 on a twenty acre plot of land near Perth, Ontario. The Ontario government requires oil and gas companies to return the land to its natural state at the end a depot's useful life. PB Oil and Gas Corporation estimates that it will operate the depot for 25 years, at which time it will cost $25,000,000 for the land reclamation project. PB Oil and Gas Corporation 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, 2018.
(b) Record any entries required related to this obligation and the Bigfoot Tank Depot at December 31, 2018.

(a) January 1, 2018

Bigfoot Tank Depot 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, 2018

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 (not asked by the question)**
**** "Interest" or "Financing" under IFRS**

Depreciation expense…….4,146,018
Accumulated depreciation, Bigfoot Tank Depot…… 4,146,018
($100m + 3,650,447)/25 = 4,146,018

QUESTION 2 (continued) (38 marks)
Answer ALL parts to this question. Each part is independent.

PART 2: (8 marks)

Salmon River Ltd. sells pies in an increasingly competitive market. In January 20XX Salmon River Ltd. commenced a premium promotion program with the objective of increasing its pie sales by providing pie-customers with coupons which can be redeemed in exchange for baking-pans.

In 20XX Salmon River Ltd. purchased 320,000 baking-pans for $4.00 each for the promotion program. To acquire a baking-pan a customer must submit four coupons to Salmon River Ltd.: the company incurs an additional $1.00 when shipping the baking-pan to the customer. Each pie sold is accompanied by two coupons. A pie costs Salmon River Ltd. $3.00 and sells for $7.50. Using the relative stand-alone selling price basis, Salmon River Ltd. determines that $1.50 of this $7.50 pertains to the two coupons that accompany each pie.

Salmon River Ltd. 's accounting year-end is 31 December.

In 20XX Salmon River Ltd. sold 1,000,000 pies (with 2,000,000 accompanying coupons) and, based on its experience with similar premium promotion programs, estimates that 70.00% of these coupons will be redeemed. 1,120,000 coupons were actually redeemed by the end of 20XX.

Required

a) Prepare the journal entries that should be recorded in 20XX relative pertaining to the premium promotion program, assuming that Salmon River Ltd. follows IFRS 15's contract-based approach [sometimes called the 'revenue approach' when accounting for premium promotion programs].

Not asked

Prepare the journal entries that should be recorded in 20XX relative to the premium promotion program, assuming that ABC Ltd. follows IFRS 15's contract-based approach [sometimes called the 'revenue approach' when accounting for premium promotion programs].	Debit	Credit	Unearned revenue (premium promotion program - baking-pans)	Premium promotion program - baking-pan inventory
Premium promotion program - baking-pan inventory	1,280,000			1,280,000
Cash/payables		1,280,000		
To record purchase of premium promotion program - baking-pan inventory: $1,280,000 = 320,000 x $4.00.				
Cash	7,500,000			
Sales revenue (pies)		6,000,000		
Unearned revenue (premium promotion program - baking-pans)		1,500,000	1,500,000	
To record (a) revenue earned from the sale of pies, and (b) unearned revenue from coupons for baking-pans. Of the $7.50 paid by a customer for each pie, $1.50 (or 20.0000% = $1.50/$7.50) is attributable to the premium promotion program -coupons. Thus, of the $7,500,000 [1,000,000 pies sold this year x $7.50 selling price per pie.], $1,500,000 (= 20.0000% x $7,500,000) is unearned revenue.				
Cost of goods sold (pies)	3,000,000			
Inventory (pies)		3,000,000		
To record cost of pies sold: $3,000,000 = 1,000,000 x $3.00.				
Unearned revenue (premium promotion program - baking-pans)	1,200,000		-1,200,000	
Sales revenue (premium promotion program - baking-pans)		1,200,000		
To record revenue earned on 280,000 baking-pans exchanged for the 1,120,000 coupons redeemed this year. $1,200,000 = 80.000000% x $1,500,000. Remember that 280,000 baking-pans is 80.000000% of the estimated total of 350,000 baking-pans = [1,000,000 x 2/4coupons x 70.00%] to be redeemed and arising from this year's pie sales and is the 'pattern of rights exercised by the customer' (see also IFRS 15's paragraph B46 on the IFRS15-excerpt screen).				
Cost of goods sold (premium promotion program)	280,000			
Cash		280,000		
To record $280,000 = 280,000 baking-pans x $1.00: $1.00 cash cost of shipping a baking-pan to the customer.				
Cost of goods sold (premium promotion program)	1,120,000			
Premium promotion program - baking-pan inventory		1,120,000		-1,120,000
To record the cost of the baking-pan-inventory redeemed by customers. $1,120,000 = 280,000 baking-pans x $4.00 purchase price per baking-pan.				
		End-of-year 20XX balances	$300,000	$160,000

See also: http://bomode.telfer.uottawa.ca/premiums/ContractBasedApproach_Sheet.aspx

QUESTION 2 (continued) (38 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

i. **An obligation of an enterprise**
ii. **Arising from past transactions or events**
iii. **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.**

Excerpt from IAS 37.10: *A liability is (i) a present obligation of the entity (ii) arising from past events, (iii) the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits.* (numbers, i, ii, iii, added)

Because it explicitly includes item iii. this is a preferable and easier to understand definition (& provided in the "Ch13 in-class slides") than that provided in Kieso et al's 11th edition page 793, Illustration 13-1.

PART 4: (3 marks)

Define *financial liability*.

A financial liability is any liability that is

- **a contractual obligation to either:**
  - **deliver cash or other financial asset to another party, or**
  - **to exchange financial instruments with another party under conditions that are potentially unfavourable.**

QUESTION 2 (continued) (38 marks)
Answer ALL parts to this question. Each part is independent.

PART 5: (9 marks)
Three independent situations follow.

Situation 1: During 2018, Orleans Corp. became involved in a tax dispute with the Canada Revenue Agency (CRA). Orleans's tax lawyers have informed management that Orleans Corp. will likely lose this dispute. They also believe that Orleans Corp. will have to pay the CRA between $950,000 and $1.5 million: no amount within this range is a better estimate than any other amount. After the 2018 financial statements were issued, the case was settled with the CRA for $1.3 million.

Required
What amount, if any, should be reported as a liability for this contingency as at December 31, 2018, assuming that Orleans Corp. follows ASPE? Briefly explain your answer.

The *CPA Canada Handbook for Private Enterprises section 3290* requires that, when some amount within the range appears at the time to be a better estimate than any other amount within the range, that amount be accrued. When no amount within the range is a better estimate than any other amount, the dollar amount at the low end of the range is accrued and the range is disclosed. Since (i) the information indicates that it is likely that a liability has been incurred at December 31, 2018, and (ii) a range of possible amounts can be reasonably determined, the criteria for recording a liability are met. In this case, therefore, Orleans Corp. would report a liability of $950,000 at December 31, 2018 and disclose the range of $950,000 to $1,500,000.

Situation 2: Toward the end of Moncton Corp.'s 2018 fiscal year, employer-union talks broke off, with the wage rates for the upcoming two years still unresolved. Just before the December 31, 2108, however, a contract was signed that gave employees a 5% increase in their hourly wage effective January 1, 2019. Moncton had spent $1.2 million in wages on this group of workers in 2018.

Required
Prepare the entry, if any, that Moncton Corp. should make at December 31, 2018. Briefly explain your answer.

Moncton Corp. would not be required to make any entry. The wage increase is for the coming two years and does not relate to the current or prior years.

Situation 3: Porto Inc. had a manufacturing plant in a foreign country that was destroyed in a civil war. It is not certain who will compensate Porto for this destruction, but Porto has been assured by that country's government officials that it will receive a definite amount, at least $25,000,000 for this plant. The compensation amount will be less than the plant's $35,000,000 fair value, but more than its $20,000,000 carrying amount.

Required
How should the contingency be reported in the financial statements of Porto Inc. under ASPE?

This is a gain contingency because the amount to be received will be in excess of the carrying amount of the plant. Under both ASPE and IFRS [IAS 37.31-35], gain contingencies are not recorded and are disclosed in the notes only when the probabilities are high ["probable" under IAS 37.31-35] that a gain contingency will become a reality.

QUESTION 2 (continued) (38 marks)
Answer ALL parts to this question. Each part is independent.

PART 6: (9 marks)

On December 31, 2018 your company buys a car from Auto Dealer Ltd. in exchange for $5,000 cash and a note (I.O.U.) requiring payment of three equal annual installments of $10,000 beginning December 31, 2019. Based on the duration of this agreement and Auto Dealer Ltd.'s assessment of future interest rates and your company's creditworthiness, Auto Dealer Ltd. requires a 6.00% rate of return on this financing arrangement. Auto Dealer Ltd. can borrow at 5.00% and its gross profit percentage on car sales is 8.00%.

Required

(a) Prepare your company's journal entry to record the purchase of the car on December 31, 2018.

(b) Prepare your company's amortization table for the note payable.

(c) Prepare your company's journal entry on December 31, 2019.

Question 1 (31 December, 2018)	Debit	Credit
Car	31,730	
Note payable		26,730
Cash		5,000
$31,730 = $5,000 + [PV Annuity, 3 installments, $10,000 each, 6.00%].		

Question 2

Date	6.00% x book (or, carrying) value of the note payable.	Cash installment paid.	Book (or, carrying) value of the note.	
31 December, 2018			$26,730	
31 December, 2019	$1,604	$10,000	$18,334	[18,334 = 26,730 - (10,000 - 1,604)].
31 December, 2020	$1,100	$10,000	$9,434	[9,434 = 18,334 - (10,000 - 1,100)].
31 December, 2021	$566	$10,000	$0	[0 = 9,434 - (10,000 - 566)].
Totals	$3,270	$30,000		

Note: $3,270 = the interest paid during the note's 3 years = $30,000 - $26,730.

Question 3 (31 December, 2019)	Debit	Credit
Note payable	10,000	
Cash		10,000
Interest expense	1,604	
Note payable		1,604

Question 4 (31 December, 2020)	Debit	Credit
Note payable	10,000	
Cash		10,000
Interest expense	1,100	
Note payable		1,100

Not asked

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

PART 1: (10 marks)
On December 1, 2018 BondBeagle Inc. issues $2,000,000 face value bonds. The bond date is July 31, 2018, and the bonds carry a coupon rate of 4% per year, payable semi-annually on July 31 and January 31. The bonds' maturity date is January 31, 2028. 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 November 30.

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

	A	B	C	D
2		TABLE 1 ISSUANCE		
3		Screen		
4			July 31, 2018	The closest preceding interest payment date to the issuance date
5			4	Number of months (rounded to the nearest whole month) between the issuance date and its closest preceding interest payment date.
6		Issuance	December 1, 2018	Date of issuance
7			2	Number of months (rounded to the nearest month) between the date of issuance and its first following interest payment date
8		I1	January 31, 2019	The first interest payment date after the issuance date

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

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

	B	C	D	E	F	G	H
2							
3	Face value		$2,000,000				
4	Stated interest rate		4.00%	per year = 2.0000% semi-annually.			
5	Effective interest rate (Yield)		3.00%	semi-annually.			
6	Issue date		December 1, 2018, 4 months after July 31, 2018, the closest preceding interest payment date.				
7	Maturity date		January 31, 2028, 6 months after July 31, 2027, the closest preceding interest payment date.				
8							
9	Accrued interest payable on the issuance date					26,666.67	= $2,000,000 x 4.0000% x 4/12 months
10	Bond proceeds, excluding any accrued interest and issuance costs (see detailed calculation below)					1,721,127.83	= $1,713,524 + [($1,724,930 - $1,713,524) x 4/6 months]
11	Face value of bonds					2,000,000.00	
12	Bond discount					-278,872.17	= $1,721,128 - $2,000,000
13							
14	Total proceeds on issuance, including accrued interest payable					1,747,794.50	= $1,721,128 + $26,667
15							
16	The closest preceding interest payment date to the issuance date is					July 31, 2018	(4 months before December 1, 2018)
17	Issuance date					December 1, 2018	
18	The first interest payment date after the issuance date is					January 31, 2019	(2 months after December 1, 2018)

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

PART 1: (10 marks) (continued)

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

		If the bonds were issued on:	
		July 31, 2018	January 31, 2019
22		There would be 19 semi-annual interest payments (114 months) between July 31, 2018 and the maturity date, January 31, 2028	There would be 18 semi-annual interest payments (108 months) between January 31, 2019 and the maturity date, January 31, 2028
23	Present value of the bond's 19.00 semi-annual interest payments of $40,000 (= $2,000,000 x 4.0000%/2) at 3.0000% effective interest rate [$572,952 = 14.32379911 x $40,000]	572,951.96	
24	Present value of the maturity value of $2,000,000 at the end of 19.00 periods at 3.0000% effective interest rate [$1,140,572 = 0.57028603 x $2,000,000]	1,140,572.05	
25	Present value of the bond's 18.00 semi-annual interest payments of $40,000 (= $2,000,000 x 4.0000%/2) at 3.0000% effective interest rate [$550,141 = 13.75351308 x $40,000]		550,140.52
26	Present value of the maturity value of $2,000,000 at the end of 18.00 periods at 3.0000% effective interest rate [$1,174,789 = 0.58739461 x $2,000,000]		1,174,789.22
27	Total	1,713,524.02	1,724,929.74
28	Bond proceeds, excluding any accrued interest and issuance cost, on December 01, 2018 (which lies between July 31, 2018 and January 31, 2019). $1,721,128 = $1,713,524 + {[($1,724,930 - $1,713,524)/6months] x 4months}	1,721,127.83	

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

	B	C	D	E
2	December 01, 2018	Date of issuance	Dr	Cr
3				
4	Bond discount		278,872.17	
5	Cash		1,747,794.50	
6		Interest payable		26,666.67
7		Bonds payable		2,000,000.00
8				
9				
10	To record the issuance of 10.00-year bonds, face value $2,000,000, stated interest rate 4.0000% per annum. The bond date is February 01, 2018 with interest paid semi-annually. There are 110 months (including 19 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: (14 marks)

On December 1, 2018 BondBeagle Inc. issues $1,000,000 face value bonds. The bond date is August 1, 2018, and the bonds carry a coupon rate of 6% per year, payable semi-annually on January 31 and July 31. The bonds' maturity date is January 31, 2028. Proceeds upon issuance, excluding accrued interest , were $1,152,208, 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 October 31, 2023 BondBeagle Inc. retires 25% of the bonds at 103%, 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)

Present all necessary journal entries on the date of retirement.

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

TABLE 2 RETIREMENT

Screen		
	July 31, 2023	The closest preceding interest payment date to the retirement date
	1	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
	August 31, 2023	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	**October 31, 2023**	**Date of retirement**
	3	Number of months (rounded to the nearest whole month) between the retirement date and the first interest payment date after the retirement date
R1	January 31, 2024	The first interest payment date after the retirement date

PVA, 9 periods, 2%, $30k = $244,867	**PV, 9 periods, 2%, $1m = $836,755**
Carrying amount at August 01, 2023 = $1,081,622	

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

	B	C	D	E	F
2					
3	Date of retirement October 31, 2023		Dr	Cr	Instructions: Enter your data in the INPUT screen: all other screens are "Output screens".
4	Interest expense		1,802.70		= $1,081,622 (net bond liability at beginning of August 01, 2023) x 2.000000% (semi-annual yield) x 2/6 months x 25.0000% retired.
5	Bond premium		697.30		= $2,500 - $1,803
6		Interest payable		2,500.00	= $1,000,000 x 25.0000% retired x 2/12 months x 6.0000%
7					
	To record interest expense incurred on 25.0000% of the bonds between August 31, 2023 (the closest preceding accounting year-end date to the retirement date) and October 31, 2023. Effective interest rate method. [Note: October 31, 2023 is neither an accounting year-end or a bond interest payment anniversary date.]				
12					
13	Interest payable	Use Ctrl+ and Ctrl- to zoom in and out.	3,750.00		= $2,500 (see above journal entry) + $1,250 (= $1,000,000 x 25.0000% retired x 1/12 months x 6.0000% accrued at August 31, 2023) July 31, 2023 is the closest preceding interest payment date to the date of retirement.
14	Bond payable		250,000.00		= $1,000,000 x 25.0000% retired
15	Bond premium		19,359.65		= $81,622 x 25.00% (unamortized at beginning of August 01, 2023) - $1,046 [$1,046 = ($1,081,622 x 2.000000% yield x 3/6 x 25.00%) - ($1,000,000 x 3.0000% interest paid x 3/6 x 25.00%) amortization, July 31, 2023 to October 31, 2023 on the 25.00% retired)]. July 31, 2023 is the closest preceding interest payment date to the date of retirement.
16					
17		Cash		261,250.00	= $257,500 (=$1,000,000 x 25.0000% x 103.0000%) + $2,500 accrued (as appears in the journal entry above) + $1,250 accrued at August 31, 2023
18		Gain on bond retirement		11,859.65	= ($261,250 - $3,750) - ($250,000 + $19,360)
19	To record the retirement at 103.0000% of 10.00 year 6.0000% bonds, issued December 01, 2018, face value $250,000.				

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

PART 3: (14 marks)

On January 1, 2015 General Selectric Limited issued a 5 year 6.00% $1,000,000 bond payable to Standard Bartered 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 2017 General Selectric Limited is in financial difficulties and is about to miss the December 31, 2017 interest payment. General Selectric Limited negotiates an arrangement with Standard Bartered Bank whereby Standard Bartered Bank agrees to waive the December 31, 2017 interest payment and to replace, effective December 31, 2017, the above bond with an 8 year $800,000 face value bond bearing 10.00% annual interest, payable semi-annually. Due to General Selectric Limited's precarious situation, lenders would normally seek a semi-annual return of 8.00% 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 substantially different in accordance with IFRS 9.3.3.2 and ASPE 3856.27)? Support your answer with all necessary calculations. (6 marks)

(b) Assume this troubled debt restructuring is a *settlement*. Provide any journal entries for the *settlement* on General Selectric Limited's books that may be necessary on December 31, 2017. Support your answer with all necessary calculations. (4 marks)

(c) Assume this troubled debt restructuring is a *modification*. Prepare General Selectric Limited's journal entry necessary on June 30, 2018 for its liability to Standard Bartered Bank. Support your answer with all necessary calculations. You may round down interest rates to zero places of decimal (e.g., 5.2% would be rounded down to 5%) (4 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 5 year bond at December 31, 2017, using the old bond's historic 4.00% semi-annual yield:					
3	PV Annuity, 4 semi-annual periods, 4.00%, $30,000:		$30,000	4.00%	4	3.629895224	$108,897
4	PV, 4 semi-annual periods, 4.00%, $1,000,000:		$1,000,000	4.00%	4	0.854804191	854,804
5							963,701
6	December 31, 2017 interest payable:						30,000
7	PV of the old financial liability owed at December 31, 2017, using its 4.00% original effective interest rate:						$993,701
8	The unamortized discount on the old financial liability:						$36,299
9							
10	Step 1(b)	Calculate the PV of the new 8 year financing arrangement at December 31, 2017, using the old bond's historic 4.00% semi-annual yield:					
11	PV Annuity, 16 semi-annual periods, 4.00%, $40,000:		$40,000	4.00%	16	11.652295608	$466,092
12	PV, 16 semi-annual periods, 4.00%, $800,000:		$800,000	4.00%	16	0.533908176	427,127
13	PV of the new financiing arrangement at December 31, 2017, using the old financial liability's 4.00% original effective interest rate:						$893,218
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 ($993,701 - $893,218):						$100,483
17	Difference as a percentage of $993,701:						10.11%
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 $993,701 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 8 year financial arrangement at 31/12/2017, using the prevailing 8.00% semi-annual effective interest rate for financial liabilities with similar risk & maturity.						
3	PV Annuity, 16 semi-annual periods, 8.00%, $40,000:		$40,000	8.00%	16	8.851369155	$354,055
4	PV, 16 semi-annual periods, 8.00%, $800,000:		$800,000	8.00%	16	0.291890468	233,512
5	PV of the new bond:						$587,567
6	Face value of the new 8 year bond:						800,000
7	Therefore, the discount on the (new) bond is:						$212,433
8							
9	Step 3(b): record the 31/12/2017 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			36,299	[=$1,000,000 - $963,701].	
13	Interest payable (on Old Bond)			30,000			
14	(New) Bond discount			212,433			
15		(New) Bond payable			800,000		
16		Gain on bond restructuring			406,134	[= $993,701 - $587,567].	

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

PART 3: (14 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 $993,701 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 $993,701 PV of the old financial liability.						
4	PVA, 16 semi-annual periods, ?%, $40,000:		$40,000	16	3.063101220%		$500,029
5	PV, 16 semi-annual periods, ?%, $800,000:		$800,000	16	3.063101220%		493,672
6	PV of the new bond:						$993,701
7	Thus, ?% = 3.063101220%: 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.						

30/06/2018

Interest expense (3.063101220% x $993,701)…… 30,438

Bond discount [or Bond payable]…… 9,562

Cash…… 40,000

Or, if using 3% as the semi-annual yield:

Interest expense (3% x $993,701)…… 29,811

Bond discount [or Bond payable]…… 10,189

Cash…… 40,000

The following table is not required in your solution.

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 3.063101220% 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.

	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: 5.00% interest paid per 6 months.	DEBIT: 3.063101220% interest expense per 6 months.	DEBIT: amortized cost of the financial liability	End of period amortized cost of the financial liability	End of period	
12	31-Dec-17	1,030,000	-36,299	993,701	40,000	30,438	9,562	984,139	30-Jun-18	1
13	30-Jun-18	1,030,000	-45,861	984,139	40,000	30,145	9,855	974,284	31-Dec-18	2
14	31-Dec-18	1,030,000	-55,716	974,284	40,000	29,843	10,157	964,128	30-Jun-19	3
15	30-Jun-19	1,030,000	-65,872	964,128	40,000	29,532	10,468	953,660	31-Dec-19	4
16	31-Dec-19	1,030,000	-76,340	953,660	40,000	29,212	10,788	942,871	30-Jun-20	5
17	30-Jun-20	1,030,000	-87,129	942,871	40,000	28,881	11,119	931,752	31-Dec-20	6
18	31-Dec-20	1,030,000	-98,248	931,752	40,000	28,541	11,459	920,293	30-Jun-21	7
19	30-Jun-21	1,030,000	-109,707	920,293	40,000	28,190	11,810	908,483	31-Dec-21	8
20	31-Dec-21	1,030,000	-121,517	908,483	40,000	27,828	12,172	896,310	30-Jun-22	9
21	30-Jun-22	1,030,000	-133,690	896,310	40,000	27,455	12,545	883,765	31-Dec-22	10
22	31-Dec-22	1,030,000	-146,235	883,765	40,000	27,071	12,929	870,836	30-Jun-23	11
23	30-Jun-23	1,030,000	-159,164	870,836	40,000	26,675	13,325	857,510	31-Dec-23	12
24	31-Dec-23	1,030,000	-172,490	857,510	40,000	26,266	13,734	843,777	30-Jun-24	13
25	30-Jun-24	1,030,000	-186,223	843,777	40,000	25,846	14,154	829,622	31-Dec-24	14
26	31-Dec-24	1,030,000	-200,378	829,622	40,000	25,412	14,588	815,035	30-Jun-25	15
27	30-Jun-25	1,030,000	-214,965	815,035	40,000	24,965	15,035	800,000	31-Dec-25	16

Financial Tables

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

Period /Percent	-2%	-1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1.0204082	1.0101010	1.0000000	0.9900990	0.9803922	0.9708738	0.9615385	0.9523810	0.9433962	0.9345794	0.9259259	0.9174312	0.9090909
2	1.0412328	1.0203041	1.0000000	0.9802960	0.9611688	0.9425959	0.9245562	0.9070295	0.8899964	0.8734387	0.8573388	0.8416800	0.8264463
3	1.0624825	1.0306102	1.0000000	0.9705901	0.9423223	0.9151417	0.8889964	0.8638376	0.8396193	0.8162979	0.7938322	0.7721835	0.7513148
4	1.0841658	1.0410204	1.0000000	0.9609803	0.9238454	0.8884870	0.8548042	0.8227025	0.7920937	0.7628952	0.7350299	0.7084252	0.6830135
5	1.1062916	1.0515357	1.0000000	0.9514657	0.9057308	0.8626088	0.8219271	0.7835262	0.7472582	0.7129862	0.6805832	0.6499314	0.6209213
6	1.1288690	1.0621573	1.0000000	0.9420452	0.8879714	0.8374843	0.7903145	0.7462154	0.7049605	0.6663422	0.6301696	0.5962673	0.5644739
7	1.1519071	1.0728861	1.0000000	0.9327181	0.8705602	0.8130915	0.7599178	0.7106813	0.6650571	0.6227497	0.5834904	0.5470342	0.5131581
8	1.1754154	1.0837234	1.0000000	0.9234832	0.8534904	0.7894092	0.7306902	0.6768394	0.6274124	0.5820091	0.5402689	0.5018663	0.4665074
9	1.1994035	1.0946701	1.0000000	0.9143398	0.8367553	0.7664167	0.7025867	0.6446089	0.5918985	0.5439337	0.5002490	0.4604278	0.4240976
10	1.2238811	1.1057274	1.0000000	0.9052870	0.8203483	0.7440939	0.6755642	0.6139133	0.5583948	0.5083493	0.4631935	0.4224108	0.3855433
11	1.2488583	1.1168963	1.0000000	0.8963237	0.8042630	0.7224213	0.6495809	0.5846793	0.5267875	0.4750928	0.4288829	0.3875329	0.3504939
12	1.2743452	1.1281781	1.0000000	0.8874492	0.7884932	0.7013799	0.6245970	0.5568374	0.4969694	0.4440120	0.3971138	0.3555347	0.3186308
13	1.3003523	1.1395738	1.0000000	0.8786626	0.7730325	0.6809513	0.6005741	0.5303214	0.4688390	0.4149644	0.3676979	0.3261786	0.2896644
14	1.3268901	1.1510847	1.0000000	0.8699630	0.7578750	0.6611178	0.5774751	0.5050680	0.4423010	0.3878172	0.3404610	0.2992465	0.2633313
15	1.3539694	1.1627118	1.0000000	0.8613495	0.7430147	0.6418619	0.5552645	0.4810171	0.4172651	0.3624460	0.3152417	0.2745380	0.2393920
16	1.3816015	1.1744564	1.0000000	0.8528213	0.7284458	0.6231669	0.5339082	0.4581115	0.3936463	0.3387346	0.2918905	0.2518698	0.2176291
17	1.4097974	1.1863196	1.0000000	0.8443775	0.7141626	0.6050164	0.5133732	0.4362967	0.3713644	0.3165744	0.2702690	0.2310732	0.1978447
18	1.4385688	1.1983026	1.0000000	0.8360173	0.7001594	0.5873946	0.4936281	0.4155207	0.3503438	0.2958639	0.2502490	0.2119937	0.1798588
19	1.4679273	1.2104067	1.0000000	0.8277399	0.6864308	0.5702860	0.4746424	0.3957340	0.3305130	0.2765083	0.2317121	0.1944897	0.1635080
20	1.4978850	1.2226330	1.0000000	0.8195445	0.6729713	0.5536758	0.4563869	0.3768895	0.3118047	0.2584190	0.2145482	0.1784309	0.1486436
21	1.5284541	1.2349828	1.0000000	0.8114302	0.6597758	0.5375493	0.4388336	0.3589424	0.2941554	0.2415131	0.1986557	0.1636981	0.1351306
22	1.5596471	1.2474574	1.0000000	0.8033962	0.6468390	0.5218925	0.4219554	0.3418499	0.2775051	0.2257132	0.1839405	0.1501817	0.1228460
23	1.5914766	1.2600580	1.0000000	0.7954418	0.6341559	0.5066917	0.4057263	0.3255713	0.2617973	0.2109469	0.1703153	0.1377814	0.1116782
24	1.6239557	1.2727858	1.0000000	0.7875661	0.6217215	0.4919337	0.3901215	0.3100679	0.2469785	0.1971466	0.1576993	0.1264049	0.1015256
25	1.6570977	1.2856422	1.0000000	0.7797684	0.6095309	0.4776056	0.3751168	0.2953028	0.2329986	0.1842492	0.1460179	0.1159678	0.0922960
26	1.6909160	1.2986285	1.0000000	0.7720480	0.5975793	0.4636947	0.3606892	0.2812407	0.2198100	0.1721955	0.1352018	0.1063925	0.0839055
27	1.7254245	1.3117460	1.0000000	0.7644039	0.5858620	0.4501891	0.3468166	0.2678483	0.2073680	0.1609304	0.1251868	0.0976078	0.0762777
28	1.7606372	1.3249960	1.0000000	0.7568356	0.5743746	0.4370768	0.3334775	0.2550936	0.1956301	0.1504022	0.1159137	0.0895484	0.0693433
29	1.7965686	1.3383797	1.0000000	0.7493421	0.5631123	0.4243464	0.3206514	0.2429463	0.1845567	0.1405628	0.1073275	0.0821545	0.0630394
30	1.8332333	1.3518987	1.0000000	0.7419229	0.5520709	0.4119868	0.3083187	0.2313774	0.1741101	0.1313671	0.0993773	0.0753711	0.0573086
31	1.8706462	1.3655543	1.0000000	0.7345771	0.5412460	0.3999871	0.2964603	0.2203595	0.1642548	0.1227730	0.0920160	0.0691478	0.0520987
32	1.9088226	1.3793478	1.0000000	0.7273041	0.5306333	0.3883370	0.2850579	0.2098662	0.1549574	0.1147411	0.0852000	0.0634384	0.0473624
33	1.9477782	1.3932806	1.0000000	0.7201031	0.5202287	0.3770262	0.2740942	0.1998725	0.1461862	0.1072347	0.0788889	0.0582003	0.0430568
34	1.9875288	1.4073541	1.0000000	0.7129733	0.5100282	0.3660449	0.2635521	0.1903548	0.1379115	0.1002193	0.0730453	0.0533948	0.0391425
35	2.0280906	1.4215698	1.0000000	0.7059142	0.5000276	0.3553834	0.2534155	0.1812903	0.1301052	0.0936629	0.0676345	0.0489861	0.0355841
36	2.0694802	1.4359291	1.0000000	0.6989249	0.4902232	0.3450324	0.2436687	0.1726574	0.1227408	0.0875355	0.0626246	0.0449413	0.0323492
37	2.1117145	1.4504334	1.0000000	0.6920049	0.4806109	0.3349829	0.2342968	0.1644356	0.1157932	0.0818088	0.0579857	0.0412306	0.0294083
38	2.1548107	1.4650843	1.0000000	0.6851534	0.4711872	0.3252262	0.2252854	0.1566054	0.1092389	0.0764569	0.0536905	0.0378262	0.0267349
39	2.1987864	1.4798831	1.0000000	0.6783697	0.4619482	0.3157535	0.2166206	0.1491480	0.1030555	0.0714550	0.0497134	0.0347030	0.0243044
40	2.2436596	1.4948314	1.0000000	0.6716531	0.4528904	0.3065568	0.2082890	0.1420457	0.0972222	0.0667804	0.0460309	0.0318376	0.0220949

Table 4: PRESENT VALUE of Annuity of $1.00 in arrears.

Period/Percent	-2%	-1%	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1.020408	1.010101	1.000000	0.990099	0.980392	0.970874	0.961538	0.952381	0.943396	0.934579	0.925926	0.917431	0.909091
2	2.061641	2.030405	2.000000	1.970395	1.941561	1.913470	1.886095	1.859410	1.833393	1.808018	1.783265	1.759111	1.735537
3	3.124123	3.061015	3.000000	2.940985	2.883883	2.828611	2.775091	2.723248	2.673012	2.624316	2.577097	2.531295	2.486852
4	4.208289	4.102036	4.000000	3.901966	3.807729	3.717098	3.629895	3.545951	3.465106	3.387211	3.312127	3.239720	3.169865
5	5.314581	5.153571	5.000000	4.853431	4.713460	4.579707	4.451822	4.329477	4.212364	4.100197	3.992710	3.889651	3.790787
6	6.443450	6.215729	6.000000	5.795476	5.601431	5.417191	5.242137	5.075692	4.917324	4.766540	4.622880	4.485919	4.355261
7	7.595357	7.288615	7.000000	6.728195	6.471991	6.230283	6.002055	5.786373	5.582381	5.389289	5.206370	5.032953	4.868419
8	8.770772	8.372338	8.000000	7.651678	7.325481	7.019692	6.732745	6.463213	6.209794	5.971299	5.746639	5.534819	5.334926
9	9.970176	9.467008	9.000000	8.566018	8.162237	7.786109	7.435332	7.107822	6.801692	6.515232	6.246888	5.995247	5.759024
10	11.194057	10.572736	10.000000	9.471305	8.982585	8.530203	8.110896	7.721735	7.360087	7.023582	6.710081	6.417658	6.144567
11	12.442915	11.689632	11.000000	10.367628	9.786848	9.252624	8.760477	8.306414	7.886875	7.498674	7.138964	6.805191	6.495061
12	13.717261	12.817810	12.000000	11.255077	10.575341	9.954004	9.385074	8.863252	8.383844	7.942686	7.536078	7.160725	6.813692
13	15.017613	13.957384	13.000000	12.133740	11.348374	10.634955	9.985648	9.393573	8.852683	8.357651	7.903776	7.486904	7.103356
14	16.344503	15.108468	14.000000	13.003703	12.106249	11.296073	10.563123	9.898641	9.294984	8.745468	8.244237	7.786150	7.366687
15	17.698472	16.271180	15.000000	13.865053	12.849264	11.937935	11.118387	10.379658	9.712249	9.107914	8.559479	8.060688	7.606080
16	19.080074	17.445637	16.000000	14.717874	13.577709	12.561102	11.652296	10.837770	10.105895	9.446649	8.851369	8.312558	7.823709
17	20.489871	18.631956	17.000000	15.562251	14.291872	13.166118	12.165669	11.274066	10.477260	9.763223	9.121638	8.543631	8.021553
18	21.928440	19.830259	18.000000	16.398269	14.992031	13.753513	12.659297	11.689587	10.827603	10.059087	9.371887	8.755625	8.201412
19	23.396367	21.040665	19.000000	17.226008	15.678462	14.323799	13.133939	12.085321	11.158116	10.335595	9.603599	8.950115	8.364920
20	24.894252	22.263298	20.000000	18.045553	16.351433	14.877475	13.590326	12.462210	11.469921	10.594014	9.818147	9.128546	8.513564
21	26.422707	23.498281	21.000000	18.856983	17.011209	15.415024	14.029160	12.821153	11.764077	10.835527	10.016803	9.292244	8.648694
22	27.982354	24.745739	22.000000	19.660379	17.658048	15.936917	14.451115	13.163003	12.041582	11.061240	10.200744	9.442425	8.771540
23	29.573830	26.005797	23.000000	20.455821	18.292204	16.443608	14.856842	13.488574	12.303379	11.272187	10.371059	9.580207	8.883218
24	31.197786	27.278582	24.000000	21.243387	18.913926	16.935542	15.246963	13.798642	12.550358	11.469334	10.528758	9.706612	8.984744
25	32.854884	28.564225	25.000000	22.023156	19.523456	17.413148	15.622080	14.093945	12.783356	11.653583	10.674776	9.822580	9.077040
26	34.545800	29.862853	26.000000	22.795204	20.121036	17.876842	15.982769	14.375185	13.003166	11.825779	10.809978	9.928972	9.160945
27	36.271224	31.174599	27.000000	23.559608	20.706898	18.327031	16.329586	14.643034	13.210534	11.986709	10.935165	10.026580	9.237223
28	38.031861	32.499595	28.000000	24.316443	21.281272	18.764108	16.663063	14.898127	13.406164	12.137111	11.051078	10.116128	9.306567
29	39.828430	33.837975	29.000000	25.065785	21.844385	19.188455	16.983715	15.141074	13.590721	12.277674	11.158406	10.198283	9.369606
30	41.661663	35.189874	30.000000	25.807708	22.396456	19.600441	17.292033	15.372451	13.764831	12.409041	11.257783	10.273654	9.426914
31	43.532309	36.555428	31.000000	26.542285	22.937702	20.000428	17.588494	15.592811	13.929086	12.531814	11.349799	10.342802	9.479013
32	45.441132	37.934776	32.000000	27.269589	23.468335	20.388766	17.873551	15.802677	14.084043	12.646555	11.434999	10.406240	9.526376
33	47.388910	39.328056	33.000000	27.989693	23.988564	20.765792	18.147646	16.002549	14.230230	12.753790	11.513888	10.464441	9.569432
34	49.376439	40.735410	34.000000	28.702666	24.498592	21.131837	18.411198	16.192904	14.368141	12.854009	11.586934	10.517835	9.608575
35	51.404530	42.156980	35.000000	29.408580	24.998619	21.487220	18.664613	16.374194	14.498246	12.947672	11.654568	10.566821	9.644159
36	53.474010	43.592909	36.000000	30.107505	25.488842	21.832252	18.908282	16.546852	14.620987	13.035208	11.717193	10.611763	9.676508
37	55.585724	45.043343	37.000000	30.799510	25.969453	22.167235	19.142579	16.711287	14.736780	13.117017	11.775179	10.652993	9.705917
38	57.740535	46.508427	38.000000	31.484663	26.440641	22.492462	19.367864	16.867893	14.846019	13.193473	11.828869	10.690820	9.732651
39	59.939321	47.988310	39.000000	32.163033	26.902589	22.808215	19.584485	17.017041	14.949075	13.264928	11.878582	10.725523	9.756956
40	62.182981	49.483141	40.000000	32.834686	27.355479	23.114772	19.792774	17.159086	15.046297	13.331709	11.924613	10.757360	9.779051

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