

COURSE: Accounting 215 DATE: December 13, 2003
 LECTURE SESSION: D, E, F INST.: Bill Wells
 QUARTER: Fall 2003
 TEST: Final Examination Version: ① 2 3 4

Circle your TA's name: Shym Nair; John Brust; Patrick Sundaresan; Karun Kandoi; Andy Call

What time does your quiz session meet? 1:30
-49

101
150

1. GENERAL INSTRUCTIONS:

- You will need access to a hand held calculator and pencil(s) only; all other materials should be out of sight. Scratch work should be done on the examination.
- You have approximately 110 minutes to complete the test. If you need clarification (e.g. definition of words, an unclear problem) during the test, raise your hand. We will help you as best we can; we will not, however, reteach any point.
- Select the best answer from the choices provided. All multiple-choice questions are worth 4 points unless otherwise indicated. Do not make any unnecessary or unsupported assumptions. All answers recorded by you must be the result of your own efforts. Record your answers on the cover sheet.
- When the bell rings, the test has ended and you should **immediately stop your work**. Work after the test has ended is subject to point reduction at the instructor's discretion. Turn in the entire exam except the time value of money tables.

2. SPECIAL INSTRUCTIONS: Time value of money tables are on the last pages of this exam:

- Assume all items are material and thus subject to GAAP unless indicated otherwise.

3 POINTS EACH		4 POINTS EACH			
1. A	6. A	11. DB	19. A	27. B	35. C
2. BC	7. BA	12. C	20. BD	28. CB	36. BD
3. E	8. D	13. B	21. CB	29. AC	37. B
4. B	9. C	14. D	22. C	30. C	38. B
5. A	10. AB	15. BC	23. BA	31. B	39. D
<u>-9</u>		16. BA	24. A	32. B	40. E
		17. D	25. C	33. CD	
		18. A	26. D	34. C	

THREE POINTS EACHCURRENT LIABILITIES

1. In general, credit ratings have what type of relationship, if any, with risk?
 - ☒ a. Inverse
 - b. Direct
 - c. None
2. You note a rather large item on a balance sheet entitled "deferred tax liability (DTL)." What message is that account conveying to the statement reader?
 - a. The firm has underpaid the amount legitimately owed to a taxing authority
 - ☒ b. The firm has overpaid the amount legitimately owed to a taxing authority
 - c. The firm has used different methods for tax and financial accounting and thus reported different amounts for tax expense and taxes paid/payable; the difference is the DTL
 - d. The firm is uncertain as to the amount owed; until the issue is resolved, the questionable amount is reported in the DTL account

ERROR CORRECTION

3. Your firm recorded \$100,000 more expenses in 2001 than it should have and \$100,000 less expenses than it should have in 2002. When the error was discovered and corrected in the middle of 2003, which account, if any, should have been debited or credited?

more expense	100	01
Cash		02

 - a. Debit 2003 expenses and credit 2002 expenses
 - b. Credit 2002 expenses and debit 2003 expenses
 - c. Credit 2003 expenses and debit 2002 expenses
 - d. Debit 2002 expenses and credit 2003 expenses
 - ☒ e. None of the above

TIME VALUE OF MONEY

4. During lecture, we determined the net present value of two machines, A and B. We chose A because it had the highest net present value. I then suggested you might wish to recompute the present value using a lower interest rate. If done, machine B had the highest net present value. Since the discount rate changed and the up-front purchase price of the machines were different, those two reasons contributed in part to the change from A to B. What was the other reason why B had the highest net present value when using a lower discount rate?
 - a. A mistake was made
 - ☒ b. Larger positive cash flows occurred at the beginning or the end of the expected period of usage
 - c. Greater risk with one machine over the other
 - ~~d.~~ Different method of discounting to the present value was used

5. \$20,000 deposited in the bank today should grow to what amount in five years, assuming the funds earn 4% annual interest compounded quarterly?

- a. \$24,403
b. \$24,397
c. \$24,333
d. \$24,310

$$PV = 20,000$$

$$n = 20$$

$$i = 1$$

LONG-TERM LIABILITIES

6. Since the value of bonds changes everyday, firms who have bonds still outstanding should:
- a. Leave the book value alone, that is, not adjust it daily for changes in the interest rates
b. Adjust the book value of that debt daily to its market value
c. Do as it pleases, that is, adjust or not adjust the book value of that debt to its market value
7. A firm's "times interest earned" ratio is 3, whereas the industry standard is 6. Which conclusion follows from these facts only?
- $\frac{\text{net income before a \∫ expense}}{\text{int expense}}$
- a. The firm will probably pay higher interest rates than other firms in the same industry the next time it borrows funds
b. The firm will probably pay lower interest rates than other firms in the same industry the next time it borrows funds
c. Interest expense is becoming a larger part of the cash being spent

OWNERS EQUITY

8. Following up on your new year's resolution, you began investing in stocks. On the first trading day of 2004, you bought 100 shares of stock for \$10 per share. During the ensuing year, you received \$1 in dividends for each share of stock owned. By year-end, the stock had increased in value to \$13 per share and you still owned all 100 shares. Looking back over the past year, how much did you earn on your investment?

- a. 10%
b. 20%
c. 30%
d. 40%

$$100 \text{ shares} \times 10 = 1000$$

$$100 \text{ shares} \times 1 = 100$$

$$100 \text{ shares} \times 13 = 1300$$

$$1300 - 1000 = 300$$

$$300 + 100 = 400$$

$$400 / 1000 = 40\%$$

9. Which of the following should occur as a result of a 4:1 stock split?

- a. The market price of a share of stock should quadruple
b. The par value of a share of stock should remain the same
c. A note disclosure about the split will be required but no journal entry should be made
d. The market value of a share of stock should go down five times

CASH FLOW

10. Assume investments classified as 1) Trading had been written up \$500 and 2) Available for Sale (long-term) had been written down \$700. What adjustment, if any, would be required to prepare the operating portion of a statement of cash flows according to the indirect method?

- a. No adjustment is necessary
- b. Deduct \$500 from net income
- c. Deduct \$700 from net income
- d. Deduct \$1200 from net income
- e. Add \$500 to net income

THE REMAINING QUESTIONS ARE WORTH FOUR POINTS EACH**CURRENT LIABILITIES**

11. Suppose throughout the year, you regularly sent cash to a taxing authority based on your estimated of the amount you will owe for the entire year. By the time the year-end arrives, you determine that too much cash has been sent in and therefore you will file for a tax refund. What accounts should be debited/credited when you make the necessary adjusting entry as of the end of your fiscal year?

<u>Debit</u>	<u>Credit</u>	
a. Taxes Receivable	Taxes Payable	Tax Expense
b. Taxes Payable ↓	Taxes Receivable ↓	Cash
c. Cash	Taxes receivable	
d. Taxes Receivable	Tax Expense	

12. When your firm sells its products, a warranty is also provided without cost to the purchaser. When a default in the product is discovered, the purchaser returns the product to your firm for repair. Based on experience, for each product sold, the average cost to fix a defective product is \$25. How should such costs be accounted for at the time indicated?

- a. Credit Warranty Expense \$25 at the time such service is performed
- b. Debit Warranty Expense for the actual cost of warranty service at the time such service is performed •
- c. Debit Warranty Payable for the actual cost of warranty service at the time such service is performed
- d. Credit Warranty Payable \$25 at the time such service is performed

13. "Cookie jar" reserves are:

- a. Assets set aside for future use
- b. Created as contingent losses are recorded •
- c. Gains recorded when the statement preparer believes it will win in a contingent situation
- d. Cash kept off the balance sheet

ERROR CORRECTION

14. Your firm purchased a \$100,000 piece of equipment, expecting it to have no salvage value after its 10 year life. The accounting clerk misread the equipment record and, for the first four years, was depreciating the equipment based on a 20 year life. The error was discovered at the end of the fifth year while adjusting entries were made. Which account/amount should be part of the fifth year's adjusting entry that both corrects the error and records this year's depreciation?

- a. Debit Retained Earnings \$20,000
b. Debit Depreciation Expense \$10,000
c. Credit Accumulated Depreciation \$30,000
d. All of the above would be included

Equip	Accum	Dep/E
100,000	5 10 5 10 5 10 5 10 20 40	

TIME VALUE OF MONEY

15. After learning you held the winning \$1,000,000 lottery ticket, you picked up your first check - \$40,000 - a few days later. (20% is withheld for tax purposes.) As the first year passed, you spent the entire \$40,000. Tomorrow is when you can pick up the second of the remaining 19 checks. You decide that spending money today is more fun than waiting to spend it as future checks arrive. So you decide to sell the rights to the remaining 19 receipts immediately. What would an investor be willing to pay for those receipts, assuming she sought a 6% return on invested funds over this duration and with this level of risk?

- a. \$442,363
b. \$459,090
c. \$473,104

- d. \$486,324

— 10,000 check

Accum
5 10 5 10 5 10 5 10 20 40

16. If a complete future value of an ordinary annuity table had been included with this exam, what factor would be found at the intersection of the 3% column and $n = 5$ row?

- a. 5.3091
b. 5.4684
c. 5.7735
d. 5.9652

1 + 1.03 + 1.0609 + 1.09277 + 1.1255081

5.159274074

5.4684

17. You decide to invest in a preferred stock that pays a \$10 annual dividend at the end of each year. If the stock can be bought today for \$50, what would you have to sell it for in five years (immediately after receiving the last dividend check in order to earn an 8% return?

a. \$39.92
 b. \$10.87 10.10
 c. \$15.62 58.66
 d. \$14.07 14.80

50 50

18. You determine that a particular piece of machinery – current market value = \$50,000, may be leased for \$8640 per year for seven years with the first payment being made at the end of each lease year. What annual interest rate is inherent in this deal?

a. 5%
 b. 6%
 c. 7%
 d. 6.9%

PV = -50
 PMT = 8640
 n = 7

19. You need at least \$60,000 in eight years from today to pay off a student loan. What is the least amount you must set aside each of those 8 years, starting immediately to reach \$60,000, assuming the best investment alternative available to you will pay 6% annual interest over the entire period? (Figures rounded to the nearest whole dollar.)

a. \$5719
 b. \$6062
 c. \$6314
 d. \$7148

FV = 60,000 begin
 n = 8
 i = 6%
 5719

20. Which of the following is not a characteristic of a capital lease?

a. Interest expense and revenue would normally be recorded by the lessee and lessor respectively
 b. Depreciation expense should be recorded on the leased asset by the lessee
 c. The asset should be included on the lessee's balance sheet
 d. Ownership of the asset automatically reverts to the lessee when the lease ends

21. The effective interest method requires:

effective x book = int exp

- a. The amount of cash paid in interest each period to equal the face value of the debt times the interest rate required by investors
 b. The amount of interest expense reported to be a constant percentage of the book value of that debt
 c. The amount of interest expense reported to equal the face value of the debt times the interest rate stated in the bond indenture
 d. The amount of cash paid in interest to equal the book value of the debt at the beginning of the period times the interest rate stated in the bond indenture

Your firm is contemplating financing its expansion by issuing bonds. Assume 1000 \$1000 face value of bonds will be issued, each paying 6% annual interest, compounded semi-annually for 5 years, after which the full face value of each bond will be due and payable. Any discounts or premiums are allocated using the effective interest method. Use this information to answer the next six questions.

22. If the investors wanted an ^{stated} 8% annual return, compounded semi-annually, which statement is correct?

- a. Interest expense will be declining each time it is recorded -
- b. The account "Premium" will be debited as interest expense is recorded
- ☒ c. The book value of the debt will be increasing as time passes -
- d. The face value of the debt will be decreasing as time passes -

effect < stated
discount

23. If the investors wanted an 8% return, compounded semi-annually, what amount of interest should be recorded 6 months after the debt was issued? (Ignore any year-end considerations in this question.)

- a. \$36,755
- ☒ b. \$36,805
- c. \$46,965
- d. \$46,431

n=10
i=8%

24. If the investors wanted a 4% annual return, compounded semi-annually, which statement is correct?

- ☒ a. Interest expense will be declining each time it is recorded
- b. The account "Discount" will be debited as interest expense is recorded
- c. The book value of the debt will be increasing as time passes
- d. The face value of the debt will be increasing as time passes

25. If the investors wanted a 4% return, compounded semi-annually, what amount of interest should be recorded 6 months after the debt was issued? (Ignore any year-end considerations in this question.)

- a. \$43,561
- b. \$21,904
- ☒ c. \$21,796
- d. \$43,593

Expense

26. Issuing debt at "par" implies:

- a. Investors perceived the 6% annual interest, compounded semi-annually as fair compensation for the risk they would have to bear if they invested in the bonds
- b. The book value of the debt will not change over its life -
- c. The amount of cash interest paid over the life of the debt should equal the amount of interest expense reported over the life of the debt -
- ☒ d. All of the statements above are correct

27. Assume the bonds referred to in earlier questions were issued at par value. A year later, you looked up those bonds and found them trading in the open market at "98." What has happened since the bonds were initially issued?
- a. The riskless rate and/or the risk premium have decreased
 - ☒ b. The riskless rate and/or the risk premium have increased
 - c. Two percent of the face value of the debt has been repaid
 - d. Demand for the investments has slipped 2% from what it was at the time it was issued

OWNERS' EQUITY

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28. Three of the four actions below will cause both earnings-per-share and return-on-equity ratios to increase. Which one will not cause those changes?
- a. Shares of were repurchased for cash and classified as treasury
 - b. New stock was issued at a price greater than its par value *
 - ☒ c. Net income increased
 - d. Realized gains occurred and unrealized price decreases were posted to owners' equity *
29. Assume the terms "cumulative" and/or "participating" are both associated with your firm's stock. Those terms suggest (select the one correct answer):
- ☒ a. Preferred stockholders will have to forgo dividends if they are not declared when scheduled
 - b. Common stockholders may receive more dividends than previously announced
 - c. Preferred stockholders may receive more dividends than as stated in the stock certificate
 - d. Common stockholders will eventually receive dividends that are not distributed as scheduled
30. Three of the four choices below correctly state a cause and an effect; which does not?
- a. Declaring then executing a stock spit - decreases the par value of a share of stock
 - b. Repurchase treasury stock - Change the market value of a share of stock (assuming the PE ratio remains unchanged) *
 - ☒ c. Issue more debt - change the book value of the firm
 - d. Report net income for the period - Change the amount reported as its residual interests *
31. In March 2003, your firm, for the first time, repurchased 6,000 shares of treasury stock (T/S) for \$36,000. In April, it reissued one-half of that stock for \$5 share. Which statement is correct?
- \$6
15,000
3,000
- a. Retained earnings should have been credited \$3,000 in April
 - ☒ b. Retained earnings should have been debited \$3,000 in April
 - c. Additional Paid in Capital - T/S should have been credited \$3,000 in April
 - d. Treasury Stock should have been credited \$36,000 in March
- Cash 15
Ret Earn 3
Tskoe 15

32. Assume 1) the par value of one share of your common stock is \$0.20, 2) a 10% stock dividend was declared and paid when 100,000 shares of stock was outstanding, and 3) the market price per share was \$20 at the time of declaration. Which statement is correct?

- ☐ a. The additional paid in capital account should increase \$2000
☒ b. Retained earnings should, after closing, decrease \$200,000
☐ c. The common stock account should increase \$198,000
☐ d. Par value of the stock will decrease 10%

stock par 200,000 → 20,000
 market 2,000,000 → 200,000

33. Consider answers a-d below as representing four separate firms. If the return on assets, average cost of debt, and return on equity for those four firms had been computed as shown, which of the four is using debt (leverage) to its disadvantage?

	<u>RETURN ON ASSETS</u>	<u>AVERAGE COST OF DEBT</u>	<u>RETURN ON EQUITY</u>
a.	20%	12%	
b.		10%	15%
<input checked="" type="radio"/> c.	12%		16%
d.		8%	5%

STATEMENT OF CASH FLOW

34. If both inventory and accounts payable increased between last year and this year, should those changes be added to and/or subtracted from net income when preparing the operating portion of a statement of cash flows using the indirect method?

<u>Increase in Inventory</u>	<u>Increase in Accounts Payable</u>
a. Added to net income	Added to net income
b. Added to net income	Subtracted from net income
<input checked="" type="radio"/> c. Subtracted from net income	Added to net income
d. Subtracted from net income	Subtracted from net income

35. Which one of the following should be added to net income to determine cash flow from operations using the indirect method?

- a. Decrease in advertising expense
 b. Gain on sale of business
☒ c. Increase in unearned revenue
 d. Decrease in dividends payable
 e. Increase in accounts receivable

Use the information which follows to determine the amount of cash paid or received as requested in the questions below.

	End <u>2002</u>	During <u>2003</u>	End <u>2003</u>
Allowance for Bad Debts	7,000		6,000
Accounts Receivable	50,000		40,000
Accumulated Depreciation	1,000		1,000
Equipment	20,000		22,000
Dividends Payable	1,000		1,400
Bonds Payable	90,000		80,000
Premium on Bonds	1,500		1,400

Sales (assume all on credit)	100,000
Depreciation Expense	300
Interest Expense on Bonds	80
Bad debts expense (% of sales method)	5,000
Net income	4,000
Loss on disposition of equipment	5,000 (Note: These assets brought in no cash when disposed of)
Retained Earnings	83 85600 → 7600

36. From the partial information above, how much cash was spent on interest?

- a. \$20
- ☒ b. \$80
- c. \$100
- d. \$180
- e. \$240

37. From the partial information above, how much cash was received from ^{customers} ~~sales and account receivable?~~

	Ac Rec	Sales	Allow	BDE
a. \$110,000				
<input checked="" type="radio"/> b. \$104,000	50	100	75	5
c. \$94,000				
d. \$106,000	40		6	
e. \$90,000				

38. From the partial information above, how much cash was spent on dividends?

- a. \$1,100
- ☒ b. \$1,000
- c. \$300
- d. \$1,700
- e. \$2,200

Use the information which follows to determine the amount of cash paid or received as requested in the questions below. (figures copied from the prior page without any changes)

	End <u>2002</u>	During <u>2003</u>	End <u>2003</u>
Allowance for Bad Debts	7,000		6,000
Accounts Receivable	50,000		40,000
Accumulated Depreciation	1,000		1,000
Equipment	20,000		22,000
Dividends Payable	1,000		1,400
Bonds Payable	90,000		80,000
Premium on Bonds	1,500		1,400

Sales (assume all on credit)	100,000
Depreciation Expense	300
Interest Expense on Bonds	80
Bad debts expense (% of sales method)	5,000
Net income	4,000
Loss on disposition of equipment	5,000 (Note: These assets brought in no cash or other asset when disposed of)

Re Earn 83 852000

39. From the partial information above, how much cash was spent on the acquisition of equipment? Assume all depreciable asset additions were paid for in cash.

- a. \$2,000
b. \$4,700
c. \$5,300
d. \$7,300
e. \$3,000

Equip	D/E	Accum		Acc. Pay
20 5000	300	1000		
1000		1000		
22				

40. Which one of the following should be subtracted from net income to determine cash flow from operations using the indirect method?

- a. Decrease in prepaid insurance
~~b. Loss on sale of equipment~~
~~c. Decrease in accounts receivable~~
~~d. Decrease in dividends payable~~
e. Increase in merchandise inventory

FUTURE VALUE OF ONE DOLLAR

n / i	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000
2	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100
3	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310
4	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641
5	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105
6	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716
7	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487
8	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436
9	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579
10	1.1046	1.2190	1.3439	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937
11	1.1157	1.2434	1.3842	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531
12	1.1268	1.2682	1.4258	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384
13	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523
14	1.1495	1.3195	1.5126	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975
15	1.1610	1.3459	1.5580	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772
16	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950
17	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545
18	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599
19	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159
20	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275

FUTURE VALUE OF AN ANNUITY DUE

N/R	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
7	7.2857	7.5830	7.8923	8.2142	8.5491	8.8975	9.2598	9.6366	10.0285	10.4359
8	8.3685	8.7546	9.1591	9.5828	10.0266	10.4913	10.9780	11.4876	12.0210	12.5795
9	9.4622	9.9497	10.4639	11.0061	11.5779	12.1808	12.8164	13.4866	14.1929	14.9374
10	10.5668	11.1687	11.8078	12.4864	13.2068	13.9716	14.7836	15.6455	16.5603	17.5312

FUTURE VALUE VALUE OF AN ORDINARY ANNUITY

n/i	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100
4	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731	4.6410
5	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847	6.1051
6	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359	7.5233	7.7156
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872
8	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.2598	10.6366	11.0285	11.4359
9	9.3685	9.7546	10.1591	10.5828	11.0266	11.4913	11.9780	12.4876	13.0210	13.5795
10	10.4622	10.9497	11.4639	12.0061	12.5779	13.1808	13.8164	14.4866	15.1929	15.9374
11	11.5668	12.1687	12.8078	13.4864	14.2068	14.9716	15.7836	16.6455	17.5603	18.5312

PRESENT VALUE OF ONE DOLLAR

N/R	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855

PRESENT VALUE OF AN ORDINARY ANNUITY

N/R	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446

PRESENT VALUE OF ANNUITY DUE

n / I	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.9901	1.9804	1.9709	1.9615	1.9524	1.9434	1.9346	1.9259	1.9174	1.9091
3	2.9704	2.9416	2.9135	2.8861	2.8594	2.8334	2.8080	2.7833	2.7591	2.7355
4	3.9410	3.8839	3.8286	3.7751	3.7232	3.6730	3.6243	3.5771	3.5313	3.4869
5	4.9020	4.8077	4.7171	4.6299	4.5460	4.4651	4.3872	4.3121	4.2397	4.1699
6	5.8534	5.7135	5.5797	5.4518	5.3295	5.2124	5.1002	4.9927	4.8897	4.7908
7	6.7955	6.6014	6.4172	6.2421	6.0757	5.9173	5.7665	5.6229	5.4859	5.3553
8	7.7282	7.4720	7.2303	7.0021	6.7864	6.5824	6.3893	6.2064	6.0330	5.8684
9	8.6517	8.3255	8.0197	7.7327	7.4632	7.2098	6.9713	6.7466	6.5348	6.3349
10	9.5660	9.1622	8.7861	8.4353	8.1078	7.8017	7.5152	7.2469	6.9952	6.7590
11	10.4713	9.9826	9.5302	9.1109	8.7217	8.3601	8.0236	7.7101	7.4177	7.1446
12	11.3676	10.7868	10.2526	9.7605	9.3064	8.8869	8.4987	8.1390	7.8052	7.4951
13	12.2551	11.5753	10.9540	10.3851	9.8633	9.3838	8.9427	8.5361	8.1607	7.8137
14	13.1337	12.3484	11.6350	10.9856	10.3936	9.8527	9.3577	8.9038	8.4869	8.1034
15	14.0037	13.1062	12.2961	11.5631	10.8986	10.2950	9.7455	9.2442	8.7862	8.3667
16	14.8651	13.8493	12.9379	12.1184	11.3797	10.7122	10.1079	9.5595	9.0607	8.6061
17	15.7179	14.5777	13.5611	12.6523	11.8378	11.1059	10.4466	9.8514	9.3126	8.8237
18	16.5623	15.2919	14.1661	13.1657	12.2741	11.4773	10.7632	10.1216	9.5436	9.0216
19	17.3983	15.9920	14.7535	13.6593	12.6896	11.8276	11.0591	10.3719	9.7556	9.2014
20	18.2260	16.6785	15.3238	14.1339	13.0853	12.1581	11.3356	10.6036	9.9501	9.3649