

SAMPLE FACT EXAM

(You must score 70% to successfully clear FACT)

1. What is the present value (PV) of \$100,000 received five years from now, assuming the interest rate is 8% per year?
 - a. \$600,000.00
 - b. \$68,058.32
 - c. \$73,502.99
 - d. \$82,609.42

2. Erin places \$200 in a savings account that pays 7% interest, compounded monthly. How much will she have in the account in three years?
 - a. \$236.00
 - b. \$238.20
 - c. \$245.00
 - d. \$246.59

3. Your grandmother bought a house 40 years ago for \$20,000. Today she sold the house for \$92,000. What was your grandmother's rate of return (annual) on this investment?
 - a. 3.89%
 - b. 4.54%
 - c. 4.67%
 - d. 10.16%

4. Kenneth has \$10,000 he is placing in a savings account that pays 6% interest, compounded annually. If Kenneth makes no additional deposits and no withdrawals, how long would it take to grow the account to \$25,000?
 - a. 11.13 years
 - b. 13.5 years
 - c. 14.27 years
 - d. 15.73 years

5. Sam just took out a \$15,000, four-year loan to buy a new car. If the interest rate on the loan is 8% APR compounded monthly, what will Sam's monthly car payments be?
 - a. \$366.19
 - b. \$4528.81
 - c. \$377.40
 - d. \$1230.60

6. Rachel is due to receive two payments from an insurance company. She will get \$1,000 exactly one year from today, and \$2,000 two years from today. Instead of the two payments, the insurance company is willing to settle the account by making one lump-sum payment to Rachel today. The insurance company applies a 6% discount rate for the one year cash flow and a 8% discount rate for the two-year cash flow. What dollar amount will Rachel receive today?
 - a. \$2,712
 - b. \$2,750
 - c. \$2,675
 - d. \$2,658
 - e. \$3,000

7. As the discount rate increases without limit, the present value of a future cash flow
 - a. approaches infinity
 - b. remains unchanged
 - c. approaches zero
 - d. approaches negative infinity

8. A perpetuity will pay \$1,000 per year, starting 5 years after the perpetuity is purchased. What is the present value of this perpetuity on the date that it is purchased, given that the interest rate is 4%?
 - a. \$1,410
 - b. \$20,582
 - c. \$21,370
 - d. \$34,604

9. Your friend Barbara has a bond that she would like to sell to you. The bond matures in 10 years, has a face value of \$1,000 and a coupon interest rate of 6% (paid annually). If you know that the yield to maturity on similar bonds is 8%, what is the maximum price you would be willing to pay for the bond?
- \$865.80
 - \$940
 - \$1000
 - \$1,147.20
10. A coupon bond which pays interest of \$60 annually, has a par value of \$1,000, matures in 5 years, and is selling today for \$915.48. The yield to maturity on this bond is approximately _____.
- 6%
 - 7%
 - 8%
 - 9%
11. Dividends-R-Us, Corp. is paying a dividend of \$3 a share today. It is expected that the company will continue its policy of increasing its dividend 8% a year every year. If you require a 14% rate of return to invest in this company, what is the maximum amount you would be willing to pay for a share of the company's stock?
- \$30.86
 - \$50.00
 - \$51.33
 - \$54.00
12. A firm is planning on paying its first dividend of \$2 in three years. After that dividends are expected to grow at 6% per year indefinitely. The stock's required return is 14%. What is the value of a share today?
- \$25.00
 - \$16.87
 - \$19.24
 - \$20.99
13. XYZ Corp's common stock can be purchased today for \$32.25. It is expected to pay \$4.25 in dividends next year. You can sell the stock for \$38.50 right after receiving the dividend next year. What is the expected return if you purchase the stock today? (Choose the nearest number)
- 11%
 - 13%
 - 19%
 - 33%
14. XYZ Corp has the same amount of sales every day. Thirty percent (30%) of its customers pay cash immediately upon purchase. Forty percent (40%) of the customers take discount and pay-up on the 10th day after sale. The remaining 30% of the customers pay in exactly 40 days. What is the average days sales outstanding (DSO)?
- 15 days
 - 12 days
 - 30 days
 - 18 days
 - 16 days
15. SAT-Corp. is considering the purchase of a new piece of machinery that will cost them \$1,800,695 today (in 2010). This piece of machinery, however, will increase the company's after-tax cash flows by \$500,000 in 2011, \$750,000 in 2012, \$1,000,000 in 2013. If SAT-Corp.'s discount rate (WACC) is 10%, then the NPV of making this purchase is
- \$449,305
 - \$243,896
 - \$25,000
 - \$1,760,000
16. ABC Corp is considering undertaking a new project. The project is expected to have an IRR of 14%. ABC Corp
- Should undertake this project if its Return on Assets (ROA) is less than 14%.
 - Undertake this project since the company has already spent \$20,000 analyzing whether this project is feasible.
 - Should undertake this project if its WACC is less than 14%.
 - Should undertake this project if its Net Profit Margin exceeds 14%.
 - Should undertake the project if its WACC exceeds 14%.

17. What is the internal rate of return of a project costing \$3,000; having after-tax cash flows of \$1,500 in each of the two years of its two-year life; and a salvage value of \$800 at the end of the second year in addition to the \$1,500 cash flow? (rounded to the nearest percentage)
- 13%
 - 15%
 - 16%
 - 19%
18. Which of the following is the BEST description of the goal of the financial manager of a public corporation?
- Maximize the shareholders' wealth by maximizing share value
 - Maximize profits
 - Maximize the number of outstanding shares
 - Keep share price stable
 - Maximize market share
19. Which of the following is a "source of cash" to the firm?
- Increase in fixed assets
 - Increase in accounts receivable
 - Reduction in the equity account
 - Reduction of inventory
 - None of the above are a source of cash
20. Break-even analysis is a technique for determining that point at which sales will just cover
- total costs
 - variable costs
 - fixed costs
 - sunk costs
 - direct costs
21. You own a portfolio. You are considering buying another stock to add to the portfolio. In which of the following situations would you get the largest amount of risk reduction?
- Stock ABC: This stock's return moves in the same direction as your portfolio's return.
 - Stock DEF: This stock's return is independent of the movement in your portfolio's return.
 - Stock LMN: This stock's return moves in an opposite direction to your portfolio's return.
 - Stock XYZ: This stock provides a very low risk-free return of 1% per year.
22. Currently, the risk-free rate of return is 10% and the expected return on the market portfolio (r_m) is 20%. The stock of GHJ Corp. has a beta (β) of 1.8. The expected return of the stock, based on the CAPM would be
- 38%
 - 28%
 - 18%
 - 10%
23. Currently, the expected return on the market portfolio (r_m) is 13%. The stock of XYZ Corp. has a beta (β) of 1.2. The expected return of the stock, based on the CAPM is 15%. What is the risk-free rate?
- Between 0% to 2.5%
 - Between 2.51% to 4%
 - Between 4.01% to 6.5%
 - More than 6.5%
24. Increasing the percentage of debt in a firm's (or project's) capital structure has the effect of:
- increasing the risk of the firm (project)
 - decreasing the risk of the firm (project)
 - not changing the risk of the firm (project)
 - cannot tell without more information
25. A current ratio that is above average and a quick (acid-test) ratio that is below average would indicate that the firm
- is using too much debt financing
 - should tighten-up its credit policy
 - is not keeping its costs under control
 - is holding excessive inventory
 - None of the above -- the Current ratio and Quick ratio measure the same thing.

26. Consider ABC Corp. The firm had sales of \$2 million last year with a net profit margin of 6%. It's total assets last year was \$1 million. What is the firm's return on assets (ROA)?
- Less than 5%
 - Between 5% and 7%
 - Between 7% and 9%
 - Between 9% and 11%
 - More than 11%.
27. Kooks Inc. needs to free-up some cash by managing its inventories. Currently, Kooks has annual cost of goods sold of \$1,600,000 and an average inventory balance of \$450,000. How much cash will become available if Kooks can shorten its average age of inventory by (8) eight days? (365 days in a year, choose the nearest thousand number).
- \$ 35,000
 - \$ 56,000
 - \$ 137,000
 - \$ 200,000
 - None of the above

Use the financial statements for ABC Corp. shown below to answer questions 24 – 25. First compute and fill in the blank squares for EBIT, EBT, Taxes, and EAT or Net Income.

INCOME STATEMENT FOR ABC CORP FOR 2010

Sales	\$100.00
Cost of Goods Sold	\$50.00
Depreciation	<u>\$10.00</u>
Earnings Before Interest and Taxes (EBIT)	-----
Interest	<u>\$15.00</u>
Earnings Before Taxes (EBT)	-----
Taxes (@30%)	-----
Earnings After Taxes (EAT) or Net Income	-----

28. The Net Income for ABC Corp. in 2010 based on the information given above is:
- \$ 7.50
 - \$ 15.00
 - \$ 17.50
 - \$ 25.00
 - \$ 27.50
29. The Operating Cash Flow for ABC Corp. in 2009 based on the information given above is:
- \$ 7.50
 - \$ 15.00
 - \$ 17.50
 - \$ 25.00
 - \$ 27.50
30. An unusually low turnover of accounts receivable, which implies a very long average collection period (or days' sales outstanding), could indicate that the firm
- Is very easy in its credit policy
 - Is very easy in its collection policy
 - Offers very little discount and thus encourages late payment
 - All of the above

SOLUTION TO SAMPLE FACT EXAM

1. $FV = 100,000$; $N = 5$; $I = 8\%$. $PV = \$68,058.32$ b
2. $PV = 200$; Annual Interest 7%; monthly rate = $7\%/12$; $N = 36$; $FV = \$246.59$ d
3. $PV = 20,000$; $N = 40$; $FV = -92,000$ $I = 3.89\%$ a
4. $PV = 10,000$; $I = 6\%$; $FV = -25,000$ $N = 15.725$ d
5. $PV = 15,000$; $APR = 8\%$; $I = 8\%/12$; $N = 48$ $PMT = 366.19$ a
6. $CF_1 = 1,000$ $I = 6\%$; $CF_2 = 2,000$ $I = 8\%$; $PV = PV_1 + PV_2 = 943.40 + 1,714.68 = 2,658.08$ d
7. High discount rate reduced the present value; infinity discount rate gives zero PV c
8. First cash flow from the perpetuity starts end of year 5. Value of Perpetuity at the end of year 4 = $\$1,000 / 4\% = \$25,000$. Now; $FV = 25,000$; $I = 4\%$; $N = 4$; $PV = \$21,370$ c

9. $FV = 1,000$; $N = 10$; $PMT = 60$; $I = 8\%$ $PV = 865.80$ a
10. $FV = 1,000$; $N = 5$; $PMT = 60$; $PV = -915.48$ $I = YTM = 8.12\%$ c
11. $D_0 = \$3.00$; $g = 8\%$; $k = 14\%$; $P_0 = D_1 / (k - g)$; $D_1 = \$3.00 * (1 + .08) = \3.24 ; $P_0 = 3.24 / 6\%$ d
12. $D_3 = \$2.00$; $g = 6\%$; $k = 14\%$; $P_2 = \$2.00 / (14\% - 6\%) = \25.00 ; $FV = 25$; $I = 14\%$; $N = 2$; $PV = \$19.24$ c
13. $D_1 = \$4.25$; $P_1 = 38.50$; $P_0 = 32.25$ $HPR = [(D_1 + P_1) / P_0] - 1 = 32.56\%$ d
14. $30\% * 0 + 40\% * 10 + 30\% * 40 = 16$ days e
15. $NPV (.10; 500,000; 750,000; 1,000,000) - 1,800,695$ $NPV = \$25,000$ c

16. Accept if IRR is greater than the Weighted Average Cost of Capital (WACC) c
17. **IRR** c
18. Value maximization a
19. Reduce inventories and generate cash d
20. Breakeven when all the costs are covered a
21. Movement in the opposite directions is negative correlation. Gives diversification benefits c
22. $k = 10\% + 1.8 * [20\% - 10\%] = 28\%$ b
23. $15\% = r + 1.2 * [13\% - r] = r + 15.6\% - 1.2r = 15.6\% - 0.2r$; or $0.2r = 15.6\% - 15\% = 0.6\%$; $r = 3\%$ b
24. Leveraging increases risk a
25. d
26. Net profit Margin = $6\% = \text{Net Income} / \text{Sales} = \text{Net Income} / \2 million ; So, Net Income = $\$120,000$
 $ROA = \text{Net Income} / \text{Total Assets} = \$120,000 / \$1,000,000 = 12\%$ e
27. Days COGS in Inv = $(450K * 365 / 1.6m) = 102.66$; new days = $94.66 = (\text{new inv} * 365 / 1.6m)$
 $\text{New inv} = (1.6m * 94.66 / 365) = 414,930$; change in inv = $450 - 414.93 = 35,052$ a
28. Net Income = $\$17.50$ c
29. Net Income + Depreciation = $\$27.50$ e
30. d

