

# Tmv questions essay



The Time Value of Money – Practive test 1 You have 1 hour 20 minutes to complete the exam. You may use a calculator (not a financial or programmable calculator), cheat sheet with formulae, copies of Financial Tables and scratch paper. Please make sure to write your name on the scantron and on exam. You need to submit both the scantron and exam. Find the best option in the available multiple choice answers. Keep in mind that there may be some rounding errors. Good luck! \_\_\_\_

1. You have just calculated the present value of the expected cash flows of a potential investment.

Management thinks your figures are too low. Which of the following actions would improve the present value of your cash flows? a. extend the cash flows over a longer period of time b. increase the discount rate c. decrease the discount rate d. extend the cash flows over a longer period of time, and decrease the discount rate

2. The effective rate of interest will always be \_\_\_\_ the nominal rate. a. greater than b. equal to c. less than d. equal to or greater than

3. \_\_\_\_ is interest that is paid not only on the principal, but also on any interest earned but not withdrawn during earlier periods. . basic interest b. simple interest c. future interest d. compound interest

4. More frequent compounding results in \_\_\_\_ future values and \_\_\_\_ present values than less frequent compounding at the same interest rate. a. higher, higher b. lower, higher c. higher, lower d. lower, lower

5. The earnings of Omega Supply Company have grown from \$2. 00 per share to \$4. 00 per share over a nine year time period. Determine the compound annual growth rate. a. 11. 1% b. 8% c. 22. 2% d. 100%

6. Comet Powder Company has purchased a piece of equipment costing \$100, 000.

It is expected to generate a ten-year stream of benefits amounting to \$16,273 per year. Determine the rate of return Comet expects to earn from this equipment. a. 16.3% b. 62.7% c. 10% d. 20% \_\_\_\_\_ 7.

Mr. Moore is 35 years old today and is beginning to plan for his retirement. He wants to set aside an equal amount at the end of each of the next 25 years so that he can retire at age 60. He expects to live to the maximum age of 80 and wants to be able to withdraw \$25,000 per year from the account on his 61st through 80th birthdays.

The account is expected to earn 10 percent per annum for the entire period of time. Determine the size of the annual deposits that must be made by Mr.

Moore. a. \$212,850 b. \$23,449 c. \$2,164 d. \$8,514 8. Many IRA funds argue that investors should invest at the beginning of the year rather than at the end. What is the difference to an investor who invests \$2,000 per year at 11 percent over a 30 year period? a. \$43,785 b. \$36,189 c. \$54,244 d.

There is no difference 9. Columbia Bank & Trust has just given you a \$20,000 term loan to pay for a new concrete mixer.

The loan requires five equal annual end of the year payments. If the loan provides the bank with a 12 percent return, what will be your annual payments? a. \$5,548 b. \$3,148.12 c. \$6,000 d. \$1,666.67 \_\_\_\_\_

10. Designs Now is opening a showcase office to display and sell its computer designed poster art. Designs expects cash flows to be \$120,000 in the first year, \$180,000 in the second year, \$240,000 in the third year. If Designs uses 11 percent as its discount rate, what is the present value of the cash flows? a. \$429,720 b. \$457,620 c. \$456,000 d. \$424,820 \_\_\_\_\_ 11.

What is the future value of a \$10,000 college tuition fund if the nominal rate of interest is 12 percent compounded monthly for five years? a. \$17,623.42

b. \$18,170 c. \$16,105.10 d. \$16,122.26 \_\_\_\_ 12. What is the most you should pay to receive the following cash flows if your required rate of return is 12 percent? Year 1 Year 2 Year 3 Year 4-10 a. b. c. d. \$58,580 \$104,135 \$68,105 \$40,000 \$5,000 \$8,000 \$12,000 \$15,000 \_\_\_\_ 13. Seebee makes

quarterly (end of period) payments of \$30,000 into a pension fund earning 12 percent per year compounded quarterly for 10 years.

How much interest will they have earned in 10 years? a. \$2,262,030 b. \$2,105,880 c. \$905,880 d. \$1,062,030 \_\_\_\_ 14. Roy, who has just turned 40,

would like to have an annual annuity of \$20,000 paid over a 20 year period, the first payment occurring on his 66th birthday. How much must Roy save each year (end of year) for the next 25 years to have this annuity, if the

investment will earn 12 percent compounded annually? a. \$16,000 b. \$19,046 c. \$1,120 d. \$944.10 \_\_\_\_ 15. You wish to have \$10,000 per year as a

retirement supplement for 20 years (from age 65-85).

You are now 40 years old. How much must you save each year for the next 25 years if you assume your savings will earn 12% annually? a. \$560.17 b.

\$1,499.99 c. \$5,403.87 d. none of the above \_\_\_\_ 16. What is the present

value of the following net cash flows if the discount rate is 10%? Year 1-10

11-15 16-20 a. b. c. d. \$217,675 \$153,895 \$322,130 \$167,515 Net Cash Flow \$20,000 each year \$15,000 each year \$10,000 each year \_\_\_\_ 17.

What monthly rate of interest will yield an annual effective rate of interest of 14%? a. 1.17% b. 1.10% c. 1.08% d. 1.14% \_\_\_\_ 18.

What is the present value of \$1, 000 received 2 years from today if the nominal interest rate is 9% and compounded monthly? a. \$842 b. \$914 c. \$833 d. \$836 \_\_\_\_ 19. Al Corbin is 25 years old today and he wishes to accumulate enough money over the next 35 years to provide for a 20 year retirement annuity of \$100, 000 at the beginning of each year, starting with his 60th birthday. He can save \$2, 000 at the end of each of the next 10 years and \$3, 000 each year for the following 10 years. How much must he save each year at the end of years 21 through 35 to obtain his goal?

Assume that the average rate of return over the entire period will be 10%. a. \$9, 642 b. \$26, 969 c. \$12, 321 d. \$24, 289 \_\_\_\_ 20. If your parents put \$2, 000 a year into an IRA account for you in each of your last 4 teenage years (age 16, 17, 18, and 19), how much would the IRA account have in it at your retirement 45 years later if the account earned 12% each year? (Assume end-of-year payments. ) a. \$1, 569, 758 b. \$ 68, 613 c. \$3, 457, 169 d. \$1, 148, 958 \_\_\_\_ 21. If you invest \$10, 000 in a 4-year certificate of deposit (CD) paying 10 percent interest compounded annually, determine how much the CD will be worth at the end of 4 years. . \$13, 600 b. \$45, 730 c. \$14, 640 d. \$15, 958 \_\_\_\_ 22. An insurance company offers you an end of year annuity of \$48, 000 per year for the next 20 years. They claim your return on the annuity is 9 percent. What should you be willing to pay today for this annuity? a. \$429, 600 b. \$438, 144 c. \$408, 672 d. \$398, 144 \_\_\_\_ 23. A bank has agreed to loan you \$10, 000 at 11% for 5 years. You are required to make equal, annual, end-of-year payments that include both principal and interest on the outstanding balance. Determine the amount of these annual payments (to the nearest dollar). a. \$2, 000 b. \$3, 100 c. 2, 706 d. \$1, 100

\_\_\_\_ 24. Sales for Triad Inc. have grown from \$2 million to \$8.092 million in 10 years. What is the implied growth rate of sales for Triad? a. 24. 72% b. 4.05% c. 15.0% d. 12.2% \_\_\_\_ 25. John borrowed \$20,000 to finance his college education. If the finance charge on the loan is 6 percent, and he will pay off the loan in 10 equal, annual, end of year payments, how much total interest will he pay? a. \$7,173.90 b. \$2,717.39 c. \$12,000.00 d. \$25,924.23 \_\_\_\_ 26. Determine the present value of \$5,000 to be received 4 years from now at the continuously discounted rate of 8 percent. . \$6,886 b. \$3,631 c. \$4,616 d. None of the above

Answer Section  
 1. 2. 3. 4. 5. ANS: D  
 ANS: D ANS: D ANS: C ANS: B  
 Solution:  $PVIF_{i,9} = \$2,000 / \$4,000 = 0.500$ .  $i = 8\%$  from Table II. 6. ANS: C  
 Solution:  $\$100,000 = \$16,273(PVIFA_{i,10})$   
 $PVIFA_{i,10} = 6.145$  Therefore,  $i = 10\%$  from Table IV  
 7. ANS: C  
 Solution:  $PVAN = PMT(PVIFA_{0.10,20}) = \$25,000(8.514) = \$212,850$  needed on 60th birthday  
 $\$212,850 = PMT(FVIFA_{0.10,25}) = PMT(98.347)$   $PMT = \$2,164$   
 8. ANS: A  
 Solution:  $FVAN_{30} = \$2,000(199.021) = \$398,042$   $FVAND_{30} = \$2,000(199.021)(1.11) = \$441,827$  Difference = \$43,785  
 9. ANS: A  
 Solution:  $PMT = \$20,000 / 3.05 = \$5,547.85$   
 10. ANS: A  
 Solution:  $PV = \$120,000(0.901) + \$180,000(0.812) + \$240,000(0.731) = \$429,720$   
 11. ANS: B  
 Solution:  $FV = \$10,000(1 + 0.12/12)^{12(5)} = \$18,170$  (using 1% factor for 60 periods from Table I)  
 12. ANS: C  
 Solution:  $PV = \$5,000(0.893) + \$8,000(0.797) + \$12,000(0.712) + \$15,000(5.650 - 2.402) = \$68,105$   
 13. ANS: D  
 Solution:  $FVAN_{40} = \$30,000(75.401) = \$2,262,030$  Fund balance after 10 years of \$2,262,030 less Payments of \$1,200,000 results in Interest = \$1,062,030  
 14. ANS: C  
 Solution:  $PVAN = \$20,000(7.469) = \$149,380$   $PMT = \$149,380 / 133.334 = \$1,120$   
 15.

ANS: A Solution:  $PVAN = 10,000(7.469) = 74,690$   $FVAN = PMT(133.334)$   
 $PMT = 74,690/133.334 = \$560.17$  16. ANS: B Solution:  $PV = \$20,000(6.145) + \$15,000(7.606 - 6.145) + \$10,000(8.514 - 7.606) = \$122,900 + \$21,915 + \$9,080 = \$153,895$  17. ANS: B Solution:  $im = (1.14)^{1/12} - 1 = .01098$  or 1.1% 18. ANS: D Solution:  $PV = \$1,000/(1 + .09/12)^{12 \times 2} = \$836$  19. ANS: C Solution:  $PVAN = \$100,000(8.514)(1.10) = \$936,540$   $\$936,540 = \$2,000(15.937)(10.835) + \$3,000(15.937)(4.177) + PMT(31.772)$   
 $\$936,540 = \$345,355 + \$199,707 + 31.772PMT$   $PMT = \$12,321$  20. ANS: A Solution:  $FV = 2000(4.79)(93.051)(1.765) = \$1,569,758$  21. ANS: C Solution:  $FV_4 = PV_0(FVIF_{i,n})$ ;  $PV_0 = \$10,000$ ;  $n = 4$ ;  $i = 0.10 = \$10,000(1.464) = \$14,640$  22. ANS: B Solution:  $PVAN = \$48,000(9.128) = \$438,144$  23. ANS: C Solution:  $PVAN_0 = \$10,000$ ;  $n = 5$ ;  $i = 11\%$   $PVAN_0 = PMT(PVIFA_{i,n})$   $\$10,000 = PMT(PVIFA_{0.11,5}) = PMT(3.696)$   $PMT = \$2,706$  24. ANS: C Solution:  $2 = 8.092(PVIF_{i,10})$   $.2472 = PVIF_{i,10}$  From Table II,  $i = 15\%$  25. ANS: A Solution:  $PMT = \$20,000/7.360 = \$2,717.39$ ; Total payments =  $\$27,173.90$   $I = \$27,173.90 - \$20,000 = \$7,173.90$  26. ANS: B Solution:  $PV_0 = \$5,000(e)^{-0.08(4)} = \$3,631$