FINANCIAL MATH & ANALYSIS CONCEPTS (190)

—OPEN EVENT—

REGIONAL – 2014

DO NOT WRITE ON TEST BOOKLET

TOTAL POINTS _____ *(500)*

Failure to adhere to any of the following rules will result in disqualification:

1. **Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.**
2. **No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.**
3. **Electronic devices will be monitored according to ACT standards.**

No more than 60 minutes testing time

GENERAL INSTRUCTIONS

The number of decimal places used in calculations and in the reporting of your answers is very important. Below are guidelines to use as you take this test. If a problem varies from these guidelines, it will be noted in the problem.

PAYROLL QUESTIONS

> ➢ Do not round the overtime rate.
> ➢ Overtime is paid for any hours over 40 worked in a week, *unless otherwise stated in the problem.*
> ➢ Normal work week is 40 hours, *unless otherwise stated in the problem.*

PERCENTAGE PROBLEMS

> ➢ Round to the nearest tenth when working with percentages.
>
> > ***Example:***   Use 2.3% NOT 2%
> > ***Example:***   An answer of .9638 should be written as 96.4%

FRACTIONS

> ➢ All problems with fractions are to be reduced to their lowest terms.

INTEREST

> ➢ All interest rates are stated in one-year simple interest, *unless otherwise noted.*
> ➢ Interest is to be calculated on 365 days.

DOLLAR AMOUNTS

> ➢ All dollar amounts must be rounded to the second place (nearest cent).
>
> > ***Example:*** $35.9765 to $35.98

1. If an automated welding machine can produce 35 welds in one hour, how many welds can be produced in a 24-hour period?
    A. 830
    B. 840
    C. 850
    D. 860

2. A small plane burns 16 gallons of fuel per hour. What is the flight time for 128 gallons?
    A. 2
    B. 4
    C. 6
    D. 8

3. A cook measures 5 cups of flour for bread, 4 cups for cookies, and 3 cups for pancakes. If this amount could be taken from the bag every day for seven days before it was empty, how many cups of flour were in the bag?
    A. 80
    B. 82
    C. 84
    D. 86

4. A worker makes $3,500 for one month's pay. Total deductions for taxes, insurance, etc., amount to $540. Rent is $880; food is $320; car expense is $290; utilities cost $85. How much money remains at the end of the month after these expenses are paid?
    A. $1,385
    B. $1,485
    C. $1,545
    D. $1,635

5. AKB Electronics is looking into renting additional warehouse space. The floor space AKB is considering needs to measure 125 feet by 84 feet. What is the square foot requirement for the additional warehouse?
    A. 10,100
    B. 10,500
    C. 12,400
    D. 14,500

6. The Arctic Omega Health Foods Co. plans to operate a kiosk in an upscale shopping mall. The space the kiosk will occupy is 17 feet by 22 feet. The monthly rental charge is $413.00. What is the annual price per square foot?
    A. $13.25
    B. $22.00
    C. $34.42
    D. $39.00

7. G's Soft Toys needs 1,200 more square feet of storage space in its distribution center. The store is willing to pay $9,000 a year for this space. What is the monthly rent G's is willing to pay?
    A. $570
    B. $600
    C. $750
    D. $900

8. Fine Gifts hired Raul's Remodeling to paint their new store. Since the job was done over a weekend, the painters were paid time and a half. They normally receive $25 per hour. Four painters worked 19 hours on the project. They used 38 gallons of paint. Each gallon of paint costs $27.50. What was the total charge for painting the new store?
   A. $2,850
   B. $2,945
   C. $3,895
   D. $4,135

9. Aretha Morgan runs a janitorial service that contracts directly with owners of large office buildings. One building has 4,225 square feet per floor and 32 stories of office space. Morgan's rate for janitorial services is $5.35 per square foot annually. To the nearest cent, what is the monthly charge for cleaning this office building?
   A. $11,266.67
   B. $22,603.75
   C. $30,138.34
   D. $60,276.67

10. If a worker makes $850.00 per week and is paid twice a month, what is the amount of her gross pay (to the nearest dollar) each pay period?
    A. $1,700
    B. $1,842
    C. $3,400
    D. $3,684

11. Jones' Grocery had new flooring laid in its bakery area. The space measures 24 feet by 18 feet. Ceramic tiles for the area cost $3.15 per square foot. Two tile layers worked 7.5 hours each to lay the tile and the tile layers were paid time-and-a-half for their work. Their normal rate is $22.25 per hour. What was the total cost of the new flooring (to the nearest dollar)?
    A. $1,611
    B. $1,695
    C. $1,861
    D. $2,542

12. Someone makes a salary of $2,400 per month. If they are paid every week, what is their gross pay per pay period (to the nearest dollar)?
    A. $554
    B. $600
    C. $820
    D. $1,600

13. Jocelyn works as a hair stylist and earns $10.50 per hour. She worked 18 hours in one week and 24 hours the next week, what is her pay for the two weeks?
    A. $189
    B. $252
    C. $360
    D. $441

14. A worker provides child care in his home. He charges $5 per hour per child. On one day he cared for Amy for 3 hours, Joshua for 4 hours, Jasmine for 4 hours, and Kaylee for 6 hours. What was his total pay for that day?
    A. $45
    B. $65
    C. $85
    D. $95

15. Cindy works at the Medical Institute 2 days each week. If she works from 6:15 – 4:45 on Tuesday and from 6:15 – 5:15 on Thursday, what are her total hours for the week? (Cindy gets a half hour lunch break that she is not paid for each day she works more than 5 hours.)
    A. 19.5
    B. 20.5
    C. 21.5
    D. 22.5

16. The monthly electricity usage for Ramirez Photo Studio is 2,135 kilowatts, and the fuel adjustment charge is $0.0155 per kilowatt hour. The energy charge for the first 1,000 kilowatt hours is $0.077 per kWh. The cost for remaining kilowatt hours is $0.059 per kWh. What is the total cost of electricity?
    A. $143.97
    B. $159.06
    C. $177.06
    D. $197.48

17. Gerald earns a 3 percent commission on all sales. He also receives a $1,100 bonus if his sales exceeds $75,000. His total sales were $85,500. What was his total pay?
    A. $2,565
    B. $3,450
    C. $3,665
    D. $4,865

18. Clarence rents out commercial real estate. He earns 2 percent commission on the first $25,000 in rentals, 4 percent on the next $25,000, and 8 percent on rentals over $50,000. Last month he was responsible for $118,000 worth of rentals. What was his total commission?
    A. $5,860
    B. $6,700
    C. $6,860
    D. $6,940

19. Nellie's monthly budget allows her to spend $150 for entertainment. In February she spent $27. What is the difference between the budgeted and actual amounts?
    A. $123 more
    B. $123 less
    C. $133 more
    D. $133 less

20. Betty is a manufacturer's representative and travels all over the country selling her company's products. Her total monthly expenses for August, September and October were $2,756.11, $7,111.20, and $5,080.70. What was her average monthly expenditure?
    A. $3,898.01
    B. $3,983.45
    C. $4,567.76
    D. $4,982.67

21. Tony budgeted $4,550 to buy a car for his son. He spent $6,788. What was the difference in his budgeted and actual amount spent?
    A. $2,238 less
    B. $2,238 more
    C. $2,338 less
    D. $2,338 more

22. Lisa had a balance of $541.82 in her checking account. She wrote a check for $27.19. What is her new balance?
    A. $494.63
    B. $514.63
    C. $569.01
    D. $578.63

23. A cabin tent retails for $899.95. Included in the retail price is $75.00 for advertising. What percent of the retail price of the tent is for advertising?
    A. 8.3 percent
    B. 10.4 percent
    C. 15.0 percent
    D. None of the above

24. Lourdes deposits the following in her checking account: 3 ten-dollar bills, 6 five-dollar bills, 9 one-dollar bills, 9 quarters, 11 dimes, 2 nickels, 47 pennies, and a check for $19.76. What is her total deposit?
    A. $72.68
    B. $72.92
    C. $92.21
    D. $92.68

25. Dental Services occupies 30,000 square feet in the Medical Arts Building with 100,000 square feet. Annual cost of security is $30,000. The Medical Arts Building apportions the cost based on square feet occupied. What does Dental Services pay?
    A. $1,200
    B. $5,782
    C. $9,000
    D. $9,900

26. The Francesco Company apportions the annual cost of utilities among its departments. The total cost for the year was $198,000. The total area of the building is 320,000 square feet. The company's research and development department occupies an area that is 100 feet by 300 feet. What does the research and development department pay for utilities for the year?
    A. $17,925.00
    B. $19,883.60
    C. $18,562.50
    D. $16,783.25

27. Sally is a representative for a window manufacturing company. She uses a van entirely for business. She trades in her van every 4 years. Sally paid $35,000 for her van and expects to receive $11,000 for the van when she trades it in after 4 years. Using the straight-line method, what is the annual depreciation?
    A. $3,500
    B. $6,000
    C. $7,000
    D. $8,750

28. The card store purchased 5 new card-display racks for a total cost of $4,625. The racks have an estimated life of 5 years. The salvage value for each rack is expected to be $45. Using the straight-line method, what is the total annual depreciation?
    A. $880
    B. $925
    C. $995
    D. $1,000

29. The bakery purchased a new oven at a cost of $1,200. The estimated life of the oven is 10 years and the salvage value is $300. What is the book value for the oven at the end of the first year?
    A. $850
    B. $900
    C. $1,000
    D. $1,110

30. Assets are $13,000 cash and $78,000 merchandise. Owner's equity is $35,000. Find the amount of liabilities.
    A. $34,000
    B. $50,000
    C. $56,000
    D. $65,000

For problems 31 through 35, fill in the missing values based on the markup of the wholesale cost.

	Wholesale Cost	Retail Price	Percent Markup
31.	$125.00	$275.00	
32.	$0.39		85%
33.		$4.50	130%
34.	23.1 cents	$1.30	
35.	$5.25		50%

31. A. 20%   B. 100%   C. 120%   D. 220%

32. A. $0.62   B. $0.72   C. $0.82   D. $0.85

33. A. $1.855   B. $1.875   C. $1.90   D. $1.955

34. A. 400%   B. 425%   C. 463%   D. 475%

35. A. $7.88   B. $8.88   C. $9.88   D. $10.50

36. Total assets are $98,000 and total liabilities are $49,000. Find the current ratio of assets to liabilities.
    A. 1:1 current ratio
    B. 3:1 current ratio
    C. 2:1 current ratio
    D. 4:1 current ratio

For problems 37 – 41, fill in the missing fraction value in terms of the other forms.

	PERCENT	DECIMAL	FRACTION
37.	25%	.25	
38.	50%	0.5	
39.	33 1/3%	.333	
40.	12.5%	.125	
41.	187.5%	1.875	

37. A. 1/4   B. 1/5   C. 1/6   D. 1/7

38. A. 1/2   B. 1/3   C. 1/4   D. 1/5

39. A. 1/2   B. 1/3   C. 1/4   D. 1/5

40. A. 1/5   B. 1/6   C. 1/7   D. 1/8

41. A. 1 5/8   B. 1 7/8   C. 1 5/7   D. 1 6/7

42. The coin shop had sales this month of $35,758 and returned merchandise of $4,500. Cost of goods sold was $12,000 and total operating expenses were $7,453. Find the gross profit on sales.
    A. $19,258
    B. $20,389
    C. $12,385
    D. $31,258

43. Sales returns at the camera shop were $349.55 and net sales were $13,982.00. What are the sales returns as a percent of net sales?
    A. 2.5 percent
    B. 8.2 percent
    C. 1.5 percent
    D. 2.2 percent

44. Mike purchased the following items: a lawnmower for $328.61; a sprinkler for $13.27; and a hose reel for $27.96. If the state sales tax is 5.5%, the county tax 1.5% and the city tax is 2%, what is his total purchase price?
    A. $332.90
    B. $369.84
    C. $403.13
    D. $415.08

45. If an 8-ounce tube of toothpaste cost $1.69, what is the unit price (per ounce) to the nearest tenth of a cent?
     A. $0.221
     B. $0.091
     C. $0.182
     D. $0.211

46. The bait and tackle shop borrowed $50,000 from the bank to pay for remodeling costs. The bank lent the money at 6 percent ordinary interest for 90 days. What is the maturity value of the loan?
     A. $50,379.73
     B. $50,499.73
     C. $50,739.73
     D. $53,000.00

47. James borrowed $200,000 to purchase a new office building at 5 percent ordinary interest for 120 days. Find the maturity value of the loan.
     A. $199,712.33
     B. $203,287.67
     C. $203,333.33
     D. $203,340.67

48. A car lists for $17,465 and has $700 of options. The dealer's cost is 89% of the list price and 86% of the options. The destination is $690. What is the dealer's cost?
     A. $16,589.85
     B. $16,835.85
     C. $16,945.85
     D. $16,955.85

49. Ashley prepared 10 2/3 gallons of punch. The guests consumed 8 3/4 gallons. How many gallons of punch was left? Express fractional part in lowest terms.
     A. 1 11/12
     B. 1
     C. 2 1/8
     D. 2 1/2

50. Divide 19.76 by 0.227. Round the answer to 3 places.
     A. 87.044
     B. 87.047
     C. 87.048
     D. 87.084

KEY

FINANCIAL MATH & ANALYSIS CONCEPTS
(190)

—OPEN EVENT—

REGIONAL – 2014

TOTAL POINTS _____(500)

Judges/Graders: Please double check and verify all scores and answer keys!

1. B	**26. C**
2. D	**27. B**
3. C	**28. A**
4. A	**29. D**
5. B	**30. C**
6. A	**31. C**
7. C	**32. B**
8. C	**33. D**
9. D	**34. C**
10. B	**35. A**
11. C	**36. C**
12. A	**37. A**
13. D	**38. A**
14. C	**39. B**
15. B	**40. D**
16. C	**41. B**
17. C	**42. A**
18. D	**43. A**
19. B	**44. C**
20. D	**45. D**
21. B	**46. C**
22. B	**47. B**
23. A	**48. B**
24. D	**49. A**
25. C	**50. C**