

MULTIPLE CHOICE QUESTIONS IN

ENGINEERING MATHEMATICS

FOR

COMPUTERIZED LICENSURE EXAM

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Engineering Economics

1.) A price tag of P1200 is specified if paid within 60 days but offers a 3% discount for cash in 30 days. Find the rate of interest.

a. 37.11%

c. 40.21%

b. 38.51%

d. 39.31%

2.) It is the practice of almost all bank in the Philippines that when they grant a loan, the interest for 1 year is automatically deducted from the principal amount upon release of money to a borrower. Let us therefore assume that you applied for a loan with the bank and the P80000 was approved at an interest rate of 14% of which P11200 was deducted and you were given a check of P68800. Since you have to pay the amount of P80000 one year after, what then will be the effective interest rate?

a. 16.28%

c. 17.30%

b. 38.51%

d. 39.31%

3.) Mr. J. Dela Cruz borrowed money from the bank. He received from the bank P1,340.00 and promised to pay P1,500.00 at the end of 9 months. Determine the simple interest rate and the corresponding discount rate or often referred to as the "Banker's Discount".

a. 15.92% ; 13.73%

c. 12.95% ; 17.33%

b. 18.28% ; 13.12%

d. 19.25% ; 13.33%

4.) A man borrowed from the bank under a promissory note that he signed in the amount of P25000.00 for a period of 1 year. He received only the amount of P21,915.00 after the bank collected the advance interest and an additional amount of P85.00 for notarial and inspection fees. What was the rate of interest that the bank collected in advance?

a. 13.64%

c. 16.43%

b. 18.37%

d. 10.32%

5.) Agnes Abanilla was granted a loan of P20,000 by her employer CPM Industrial Fabricator and Construction Corporation with an interest at 6% for 180days on the principal collected in advance. The corporation would accept a promissory note for P20,000 non-interest for 180days. If discounted at once, find the proceeds in the note.

- a. **P18,800**
- b. P19,000
- c. P18,000
- d. P18,400

6.) P4000 is borrowed for 75days at 16% per annum simple interest. How much will be due at the end of 75days?

- a. P4186.43
- b. P5124.54
- c. **P4133.33**
- d. P5625.43

7.) Mr. Almagro made a money market placement of P1,000,000 for 30 days at 7.5% per year. If withholding tax is 20%, what is the net interest that Mr. Almagro will receive at the end of the month?

- a. P3,000
- b. P4,000
- c. P6,000
- d. **P5,000**

8.) A bill for motorboat specifies the cost as P1,200 due at the end of 100days but offers a 4% discount for cash in 30days. What is the highest rate, simple interest at which the buyer can afford to borrow money in order to take advantage of the discount?

- a. 18.4%
- b. 19.6%
- c. 20.9%
- d. **21.4%**

9.) In buying a computer disk, the buyer was offered the options of paying P250 cash at the end of 30days or P270 at the end of 120days. At what rate is the buyer paying simple interest if he agree to pay at the end of 120days?

- a. **32%**
- b. 40%
- c. 28%
- d. 25%

10.) On March 1, 1996 Mr. Almagro obtains a loan of P1500 from Mr. Abella and signs a note promising to pay the principal and accumulated simple interest at the rate of 5% at the end of 120days. On May 15, 1996, Mr. Abella discounts the note at the bank whose discount rate is 6%. What does he receive?

- a. P2,201.48
- b. P1,123.29
- c. **P1,513.56**
- d. P938.20

11.) A deposit of P110,000 was made for 31days. The net interest after deducting 20% withholding tax is P890.36. Find the rate of return annually.

- a. 12.25
- b. **11.75**
- c. 12.75
- d. 11.95

12.) If you borrowed money from your friend with simple interest of 12%, find the present worth of P50,000 which is due at the end of 7months.

- a. P46,200
- b. P44,893
- c. **P46,729**
- d. P45,789

13.) A man borrowed P2000 from a bank and promise to pay the amount for 1year. He received only the amount of P1,920 after the bank collected an advance interest of P80. What was the rate of discount and the rate of interest that the bank collected in advance?

- a. **4% ; 4.17%**
- b. 3% ; 3.17%
- c. 4% ; 4.71%
- d. 3% ; 3.71%

14.) An engineer promised to pay P36,000 at the end of 90days. He was offered a 10% discount if he pays in 30days. Find the rate of interest.

- a. 64.6%
- b. 65.6%
- c. **66.6%**
- d. 67.6%

15.) A man is required to pay P200 at the end of 160days or P190 at the end of 40days. Determine the rate of interest.

- a. 18.4% **c. 15.8%**
- b. 19.6% d. 16.4%

16.) Compute the discount if P2000 is discounted for 6months at 8% simple interest.

- a. P29.67 **c. P76.92**
- b. P67.29 d. P92.76

17.) The amount of P12800 in 4years at 5% compounded quarterly is _____.

- a. P14,785.34 c. P16,311.26
- b. P15,614.59** d. P15,847.33

18.) A man borrows money from a bank which uses a simple discount rate of 14%. He signs a promissory note promising to pay P500.00 per month at the end of 4th, 6th, and 7th month respectively. Determine the amount of money that he received from the bank.

- a. P1403.68** c. P1102.37
- b. P1340.38 d. P1030.28

19.) A nominal interest of 3% compounded continuously is given on the account. What is the accumulated amount of P10,000 after 10years?

- a. P13,610.10 **c. P13,498.60**
- b. P13,500.10 d. P13,439.16

20.) BY the condition of a will, the sum of P2000 is left to a girl to be held in trust fund by her guardian until it amount to P50000.00. When will the girl receive the money of the fund is invested at 8% compounded quarterly?

- a. 7.98 years *c. 11.57 years*
b. 10.34 years d. 10.45 years

21.) A man expects to receive P25,000 in 8 years. How much is that worth now considering interest at 8% compounded quarterly?

- a. P13,859.12 c. P13,675.23
b. P13,958.33 *d. P13,265.83*

22.) P500,000 was deposited at an interest of 6% compounded quarterly. Compute the compound interest after 4 years and 9 months.

- a. P163,475.37* c. P158,270.37
b. P178,362.37 d. P183,327.37

23.) If the nominal interest rate is 3%, how much is P5000 worth in 10 years in a continuously compounded account?

- a. P5750 c. P7500
b. P6750 d. P6350

24.) P200,000 was deposited for a period of 4 years and 6 months and bears on interest of P85649.25. What is the rate of interest if it is compounded quarterly?

- a. 8%* c. 7%
b. 6% d. 5%

25.) How many years will P100,000 earn a compound interest of P50,000 if the interest rate is 9% compounded quarterly?

- a. 3.25 years c. 5.86 years
b. 4.55 years d. 2.11 years

26.) A certain amount was deposited 5 years and 9 months ago at an interest of 8% compounded quarterly. If the sum now is P315,379.85, how much was the amount deposited?

a. P200,000

c. P240,000

b. P180,000

d. P260,000

For Problems 27-29:

When compounded Bi-monthly, P15000 becomes P22,318.30 after 5years.

27.) What is the nominal rate of interest?

a. 7%

c. 9%

b. 8%

d. 10%

28.) What is the equivalent rate if it is compounded quarterly?

a. 7.03%

c. 9.03%

b. 8.03%

d. 10.03%

29.) What is the effective rate if it is compounded quarterly?

a. 7.28%

c. 9.28%

b. 8.28%

d. 10.28%

30.) How will it take a money to double itself if invested at 5% compounded annually?

a. 12.2 years

c. 14.2 years

b. 13.2 years

d. 15.2years

31.) Compute the effective annual interest rate which is equivalent to 5% nominal annual interest compounded continuously.

a. 5.13%

c. 5.26%

b. 4.94%

d. 4.90%

32.) Find the time required for a sum of money to triple itself at 5% per annum compounded continuously.

a. 21.97 years

c. 18.23 years

b. 25.34 years

d. 23.36 years

33.) A man wishes to have P40,000 in a certain fund at the end of 8 years. How much should he invest in a fund that will pay 6% compounded continuously?

a. P24,751.34

c. P28,864.36

b. P36,421.44

d. P30,468.42

34.) If the effective annual interest rate is 4%, compute the equivalent nominal annual interest compounded continuously.

a. 3.92%

c. 3.80%

b. 4.10%

d. 4.09%

35.) What is the nominal rate of interest compounded continuously for 10 years if the compound amount factor is equal to 1.34986?

a. 3%

c. 5%

b. 4%

d. 6%

36.) American Express Corp. charges 1.5% interest per month, compounded continuously on the unpaid balance purchases made on this credit card. Compute the effective rate of interest.

a. 19.72%

c. 21.20%

b. 20.25%

d. 19.90%

37.) If the nominal interest is 12% compounded continuously, compute the effective annual rate if interest.

a. 12.75%

c. 12.40%

b. 11.26%

d. 11.55%

38.) Compute the difference in the future amount of P500 compounded annually at nominal rate of 5% and if it is compounded continuously for 5 years at the same rate.

a. P3.87

c. P5.48

b. P4.21

d. P6.25

39.) If the effective rate is 24%, what nominal rate of interest is charged for a continuously compounded loan?

a. 21.51%

c. 23.25%

b. 22.35%

d. 21.90%

40.) What is the nominal rate of interest compounded continuously for 8 years if the present worth factor is equal to 0.6187835?

a. 4%

c. 6%

b. 5%

d. 7%

41.) What is the difference of the amount 3 years from now for a 10% simple interest and 10% compound interest per year?(P5000 accumulated)

a. P155

c. same

b. P100

d. P50

42.) Find the discount if P2,000 is discounted for 6 months at 8% compounded quarterly.

a. P76.92

c. P77.66

b. P80.00

d. P78.42

43.) If a sum of money triples in a certain period of time at a given rate interest, compute the value of the single payment present worth factor.

a. 0.333

c. 0.292

b. 3.000

d. 1.962

44.) If the single payment amount factor for a period of 5 years is 1.33822. What is the nearest value of the interest rate?

a. 8%

c. 5%

b. 7%

d. 6%

45.) If the single payment present worth factor for a period of 8 years is equal to 0.58201, compute the nearest value of the rate of interest for that period.

a. 6%

c. 5%

b. 7%

d. 8%

46.) If money is worth 8% compounded quarterly, compute the single payment amount factor for a period of 6 years.

a. 1.60844

c. 1.70241

b. 0.62172

d. 0.53162

47.) A sum of P1,000 is invested now and left for 8 years, at which time the principal is withdrawn. The interest has an accrued left for another 8 years. If the effective annual interest is 5%, what will be the withdrawn amount at the end of the 16th year?

a. P507.42

c. P750.42

b. P705.42

d. P425.07

For problems 48-50:

Compute the interest for an amount of P200,000 for a period of 8 years.

48.) If it was made at a simple interest rate of 16% .

- | | |
|-------------|--------------------|
| a. P274,000 | c. P256,000 |
| b. P265,000 | d. P247,000 |

49.) If it was made at 16% compounded bi-monthly.

- | | |
|-----------------------|----------------|
| a. P507,267.28 | c. P407,283.01 |
| b. P507,365.96 | d. P459,923.44 |

50.) If it was made at 16% compounded continuously.

- | | |
|----------------|-----------------------|
| a. P422,462.64 | c. P524,242.46 |
| b. P507,233.24 | d. P519,327.95 |

51.) Find the value of x, (F/P, x, 6) if F/P compounded quarterly is equal to 1.612226.

- | | |
|--------------|-------|
| a. 7% | c. 5% |
| b. 8% | d. 6% |

52.) Find the value of y, (P/F, 6%, y) if P/F compounded bi-monthly is equal to 0.787566.

- | | |
|------------|-------------------|
| a. 7 years | c. 5 years |
| b. 6 years | d. 4 years |

53.) Find the rate of interest if compound amount factor compounded bi-monthly for 5 years is equal to 1.487887.

a. 7%

c. 5%

b. 8%

d. 6%

54.) Compute the nominal rate for a period of 6 years for an effective rate of 8.33% if it is compounded continuously.

a. 7%

c. 5%

b. 8%

d. 6%

55.) Compute the equivalent compound amount factor if it is compounded continuously.

a. 1.61607

c. 1.24532

b. 1.24282

d. 0.24245

56.) Compute the equivalent present worth factor if it is compounded continuously.

a. 1.249347

c. 1.243248

b. 1.214359

d. 0.616783

57.) A man loan P2000 from the bank. How long would it take in years for the amount of the loan and interest to equal P3280 if it was made at 8% simple interest.

a. 7 years

c. 5 years

b. 8 years

d. 6 years

58.) A man loan P2000 from the bank. How long would it take in years if it was made at 8% compounded quarterly.

a. 5.25 years

c. 7.25 years

b. 6.25 years

d. 8.25 years

59.) A man loan P2000 from the bank. How long would it take in years if it was made at 8% compounded continuously.

a. 7.18 years

c. 5.18 years

b. 8.18 years

d. 6.18 years

60.) An amount of P1000 becomes P1608.44 after 4 years compounded bi-monthly. Find the nominal rate of interest, the effective rate of interest, and the equivalent rate of interest if it is compounded quarterly.

a. 11% ; 12.623% ; 11.42%

c. 12% ; 11.06% ; 12.724%

b. 12% ; 12.616% ; 12.06%

d. 11% ; 11.664% ; 11.93%

61.) How long would it take your money to double itself if it is invested at 6% simple interest, compounded semi-quarterly, and compounded continuously?

a. 12.67yrs ; 11.2yrs ; 15.05yrs

c. 18.67yrs ; 11.6yrs ; 11.24yrs

b. 16.67yrs ; 11.6yrs ; 11.55yrs

d. 17.67yrs ; 10.2yrs ; 11.45yrs

For problems 62-64:

An amount of P50,000 was invested for 3 years.

62.) Compute its interest at the end of 3 years if it is invested at 10% simple interest.

a. P16,550.00

c. P15,000.00

b. P17,492.94

d. P14,242.15

63.) Compute for its compound interest if it is invested at 10% compounded annually.

a. P16,550.00

c. P15,000.00

b. P17,492.94

d. P14,242.15

64.) Compute its interest if it is invested at 10% compounded continuously.

a. P16,550.00

c. P15,000.00

b. P17,492.94

d. P14,242.15

For Problems 65-67:

P200,000 was deposited for a period of 4 yrs. And 6 months and bears on interest of P85,659.25.

65.) What is the nominal rate of interest if it is compounded quarterly?

a. 8.00%

c. 7.00%

b. 8.24%

d. 7.96%

66.) What is the actual rate of interest?

a. 8.00%

c. 7.00%

b. 8.24%

d. 7.96%

67.) What is the equivalent nominal rate if it is compounded semi-quarterly?

a. 8.00%

c. 7.00%

b. 8.24%

d. 7.96%

68.) What is the value of (F/P, 8%, 6) if it is compounded semi-quarterly.

a. 0.524273541

c. 1.487886717

b. 0.787566127

d. 1.612226000

69.) What is the value of (P/F, 6%, 4) if it is compounded bi-monthly.

a. 0.524273541

c. 1.487886717

b. 0.787566127

d. 1.612226000

70.) What is the single payment compound amount factor for 8% compounded bi-monthly for 5 years.

- a. 0.524273541
- b. 0.787566127
- c. **1.487886717**
- d. 1.612226000

For Problems 71-73:

If money is invested at a nominal rate of interest of 8% for a period of 4 years.

71.) What is the effective rate if it is compounded continuously?

- a. **8.33%**
- b. 8.93%
- c. 9.33%
- d. 9.93%

72.) What is the value of the compound amount factor if it is compounded continuously?

- a. **1.377128**
- b. 0.214212
- c. 1.424231
- d. 0.122416

73.) What is the value of the present worth factor if it is compounded continuously?

- a. 1.272441
- b. 1.726419
- c. 0.272441
- d. **0.726149**

74.) If the single payment amount factor for a period of 5 years is 1.33822, what is the nominal rate of interest?

- a. **6.00%**
- b. 6.92%
- c. 7.00%
- d. 7.92%

75.) What is the effective rate of interest if it is compounded semi-annually of problem# 74?

- a. 5.00%
- b. 6.92%
- c. 7.24%
- d. 6.09%**

76.) What is the equivalent nominal rate if it is compounded quarterly of problem# 74?

- a. 6.12%
- b. 5.43%
- c. 4.24%
- d. 5.87%**

77.) Money was invested at $x\%$ compounded quarterly. If it takes money to quadruple in 17.5 years, find the value of x .

- a. 6.23%
- b. 5.92%
- c. 8.00%**
- d. 9.78%

78.) What is the actual interest rate of problem# 77?

- a. 7.24%
- b. 8.24%**
- c. 7.92%
- d. 8.87%

79.) What is the equivalent rate if problem# 77 is compounded daily?

- a. 7.24%
- b. 8.24%
- c. 7.92%**
- d. 8.87%

For Problems 80-82:

A businessman loaned P500,000 from a local bank that charges an interest rate of 12%.

80.) How much is he going to pay at the end of 5 years if it was made at 12% simple interest?

- a. P800,000.00**
- c. P911,059.20

b. P823,243.09

d. P907,009.21

81.) How much is he going to pay at the end of 5 years if it was made at 12% compound semi-annually?

a. P800,000.00

c. P911,059.20

b. P823,243.09

d. P907,009.21

82.) How much is he going to pay at the end of 5 years if it was made at 12% compound annually?

a. P800,000.00

c. P911,059.20

b. P823,243.09

d. P907,009.21

83.) P60,000 was deposited at 6% compounded quarterly, tax free for 9 years and 3 months. How much interest was earned at the end of the period?

a. P43,214.24

c. P44,086.60

b. P43,242.24

d. P44,215.60

84.) P100,000 was placed in a time deposit which earned 9% compounded quarterly tax free. After how many years would it be able to earn a total interest of P50,000?

a. 4.56 years

c. 3.45 years

b. 4.23 years

d. 3.64 years

85.) P200,000 was placed in a time deposit at x% compounded quarterly and was free of taxes. After exactly 5 years, the total interest earned was P120,000. What is the value of x?

a. 9.5%

c. 6.35%

b. 8.21%

d. 7.12%

86.) Which of these gives the lowest effective rate of interest?

- a. 12.35% compounded annually
- b. 11.9% compounded semi-annually
- c. 12.2% compounded quarterly
- d. 11.6% compounded monthly**

87.) It takes 20.15 years to quadruple your money if it is invested at $x\%$ compounded semi-annually. Find the value of x .

- a. 8%
- b. 6%
- c. 7%**
- d. 5%

88.) It takes 13.87 years to treble the money at the rate of $x\%$ compounded quarterly. Compute the value of x .

- a. 5%
- b. 6%
- c. 7%
- d. 8%**

89.) Money was invested at $x\%$ compounded quarterly. If it takes the money into quadruple in 17.5 years, find the value of x .

- a. 8%**
- b. 6%
- c. 7%
- d. 5%

90.) Fifteen years ago P1,000.00 was deposited in a bank account, and today it is worth P2,370.00. The bank pays interest semi-annually. What was the interest rate paid on this account?

- a. 4.9%
- b. 5.8%**
- c. 5.0%
- d. 3.8%

91.) You borrow P3,500.00 for one year from a friend at an interest rate of 1.5% per month instead of taking a loan from a bank at a rate of 18% per year. Compare how much money you will save or lose on the transaction.

- a. pay P155 more if you borrowed from the bank

b. save P55 by borrowing from your friend

c. pay P85 more if you borrowed from the bank

b. save P95 by borrowing from your friend

92.) Find the present worth of a future payment of P1000,000 to be made in 10 years with an interest of 12% compounded quarterly.

a. P30,444.44

c. P30,655.68

b. P33,000.00

d. P30,546.01

93.) An initial savings deposit of P80,000 in a certain bank earns 6% interest per annum compounded monthly. If the earnings from the deposit are subject to a 20% tax, what would the net value of the deposit be after three quarters?

a. P95,324.95

c. P68743.24

b. P82938.28

d. P56244.75

94.) The effective rate of interest of 14% compounded semi-annually is:

a. 14.49%

c. 14.94%

b. 14.36%

d. 14.88%

95.) The amount of P50,000 was deposited in a bank earning an interest of 7.5% per annum. Determine the total amount at the end of 5 years, if the principal and interest were not withdrawn during the period.

a. P71,781.47

c. P70,374.90

b. P72,475.23

d. P78,536.34

96.) What is the effective rate corresponding to 18% compounded daily? Take 1 year is equal to 360 days.

102.) How long (in years) will it take the money to quadruple if it earns 7% compounded semi-annually?

- a. 26.30 years
- b. 40.30 years
- c. 33.15 years
- d. **20.15 years**

103.) P200,000 was deposited on Jan. 1, 1988 at an interest rate of 24% compounded semi-annually. How much would the sum be on Jan. 1, 1993?

- a. P421,170
- b. P521,170
- c. P401,170
- d. **P621,170**

104.) If P500,000 is deposited at a rate of 11.25% compounded monthly, determine the compounded interest after 7 years and 9 months.

- a. **P690,849**
- b. P670,258
- c. P680,686
- d. P660,592

105.) P200,000 was deposited at an interest rate of 24% compounded semi-annually. After how many years will the sum be P621,170?

- a. 4 years
- b. 3 years
- c. **5 years**
- d. 6 years

106.) A bank is advertising 9.5% accounts that yields 9.84% annually. How often is the interest compounded?

- a. monthly
- b. bi-monthly
- c. **quarterly**
- d. daily

107.) A marketing company established a program to replace the cars of its sales representatives at the end of every 5 years. If the present price of the approved type of car is P520,000.00 with a resale value at the end of 5 years of 60% its present value, how much money must the company

accumulate for 5 years if inflation annually is 10%. Release value will also appreciate at 10% yearly.

a. P120,289.51

c. P110,297.27

b. P129,382.38

d. P122,265.69

108.) In year zero, you invest P10,000.00 in a 15% security for 5 years. During that time, the average annual inflation is 6%. How much, in terms of year zero will be in the account at maturity?

a. P15,386.00

c. P13,382.00

b. P15,030.00

d. P16,653.00

109.) A machine has been purchased and installed at a total cost of P18,000.00. The machine will be retired at the end of 5 years, at which time it is expected to have a scrap value of P2,000.00 based on current prices. The machine will then be replaced with an exact duplicate. The company plans to establish a reserve fund to accumulate the capital needed to replace the machine. If an average annual rate of inflation of 3% is anticipated, how much capital must be accumulated?

a. P15,030.00

c. P12,382.00

b. P18,548.39

d. P15,386.00

110.) If the inflation rate is 6%, cost of money is 10%, what interest rate will take care of inflation and the cost of money?

a. 16.6%

c. 17.7%

b. 15.5%

d. 14.4%

111.) A man bought a government bond which cost P1000 and will pay P50 interest each year for 20 years. The bond will mature at the end of 20 years and he will receive the original P1000. If there is 2% annual inflation during this period, what rate of return will the investor receive after considering the effect of inflation?

a. 2.94%

c. 4.25%

b. 3.16%

d. 5.16%

112.) The inflated present worth of P2000 in two years is equal to P1471.07. What is the rate of inflation if the interest rate is equal to 10% ?

a. 6%

c. 7%

b. 5%

d. 4%

113.) 12% rate of interest can take care of the cost of money and inflation. If the nominal rate of interest is 6%, what is the rate of inflation?

a. 6.62%

c. 7.67%

b. 5.66%

d. 4.64%

114.) An engineer bought an equipment for P500,000. Other expenses including installations amounted to P30,000. At the end of its estimated useful life of 10 years, the salvage value will be 10% of the first cost. Using straight line method of depreciation, what is the book value after 5 years?

a. P291,500

c. P242,241

b. P282,242

d. P214,242

115.) A small machine costing P80,000 has a salvage value of x at the end of its life of 5 years. The book value at the end of the 4th year is P22,400. What is the value of x using the straight line method depreciation?

a. P6000

c. P8000

b. P7000

d. P9000

116.) A machine has a salvage value of P12,000 at the end of its useful life of 6 years. The book value at the end of 5 years is P30,833.33. Using a straight line method of depreciation, what is the first cost of the machine?

a. P125,500

c. P125,000

b. P135,500

d. P135,000

117.) A manufacturing plant was built at a cost of P5M and is estimated to have a life of 20 years with a salvage value of P1M. A certain equipment worth P570,000 was installed at a cost of P80,000 is expected to operate economically for 15 years with a salvage value of P50,000. Determine the book value of the plant and equipment after 10 years, use straight line depreciation method.

a. P3,250,000

c. P4,250,000

b. P3,750,000

d. P4,500,000

118.) A printing equipment costs P73,500 has a life expectancy of 8 years and has a salvage value of P3,500 at the end of its life. The book value at the end of x years is equal to P38,500. Using straight line method of depreciation, solve for the value of x.

a. 5 years

c. 6 years

b. 4 years

d. 3 years

119.) The cost of the printing equipment is P500,000 and the cost of handling and installation is P30,000. If the book value of the equipment at the end of the 3rd year is P242,000 and the life of the equipment is assumed to be 5 years, determine the salvage value of this equipment at the end of 5 years.

a. P50,000

c. P53,000

b. P60,000

d. P64,000

120.) An engineer bought an equipment for P500,000. He spent an additional amount of P30,000 for installation and other expenses. The salvage value is 10% of the first cost. If the book value at the end of 5 years will be P291,500 using straight line method of depreciation, compute the useful life of the equipment in years.

a. 10 years

c. 6 years

b. 8 years

d. 15 years

121.) The cost of equipment is P500,000 and the cost of installation is P30,000. If the salvage value is 10% of the cost of equipment at the end of 5 years, determine the book value at the end of the fourth year. Use straight line method.

- | | |
|-------------|--------------------|
| a. P155,000 | c. P146,000 |
| b. P140,000 | d. P132,600 |

For Problems 122-124:

The first cost of a machine is P1,800,000 with a salvage value of P300,000 at the end of its life of 5 years. Determine the total depreciation after 3 years.

122.) Using Straight Line Method

- | | |
|-------------|--------------------|
| a. P800,000 | c. P900,000 |
| b. P600,000 | d. P700,000 |

123.) Using Sum of Years Digit Method

- | | |
|----------------------|---------------|
| a. P1,150,000 | c. P1,300,000 |
| b. P1,200,000 | d. P1,350,600 |

124.) Using Constant Percentage Method

- | | |
|-------------------------|------------------|
| a. P1,355,024.24 | c. P1,246,422.53 |
| b. P1,185,769.76 | d. P1,432,624.84 |

125.) An asset is purchased for P9,000.00. Its estimated economic life is 10 years after which it will be sold for P1,000.00. Find the depreciation in the first three years using straight line method.

- | | |
|------------------|-----------|
| a. P2,500 | c. P3,000 |
| b. P2,400 | d. P2,000 |

126.) The purchase of a motor for P6000 and a generator for P4000 will allow the company to produce its own energy. The configuration can be assembled for P500. The service will operate for 1600 hours per year for 10 years. The maintenance cost is P300 per year, and cost to operate is P0.85 per hour for fuel and related cost. Using straight line depreciation, what is the annual cost for the operation? There is a P400 salvage value for the system at the end of 10 year.

- a. P2,710
- b. P2,480
- c. P2,630
- d. P2,670**

127.) A machine has an initial cost of P50,00.00 and a salvage value of P10,000.00 after 10 years. What is the straight line method depreciation rate as a percentage of the initial cost?

- a. 10%
- b. 8%**
- c. 12%
- d. 9%

128.) A machine has an initial cost of P50,00.00 and a salvage value of P10,000.00 after 10 years. What is the book value after 5 years using straight line method depreciation rate?

- a. P35,000
- b. P25,000
- c. P15,500
- d. P30,000**

129.) A machine has a first of P80,000 and a salvage of P2,000 at the end of its life of 10 years. Find the book value at the end of the 6th year using straight line method of depreciation.

- a. P33,200**
- b. P35,400
- c. P34,300
- d. P32,900

130.) An asset is purchased for P90,000.00. Its estimated life is 10 years after which it will be sold for P1,000.00. Find the book value during the first year if Sum of the Years Digits(SYD) depreciation is used.

- a. P7,545.45**
- c. P5,245.92

b. P2,980.24

d. P6,259.98

131.) A telephone company purchased a microwave radio equipment for P6M. Freight and installation charges amounted to 3% of the purchased price. If the equipment shall be depreciated over a period of 8 years with a salvage value of 5%, determine the depreciation charge during the 5th year using the Sum of Year Digit Method.

a. P756,632.78

c. P652,333.33

b. P957,902.56

d. P845, 935.76

132.) A consortium of international communications companies contracted for the purchase and installation of a fiber optic cable linking two major Asian cities at a total cost of P960M. This amount includes freight and installation charges at 10% of the above total contract price. If the cable depreciated over a period of 15 years with zero salvage value, what is the depreciation charge during the 8th year using the sum of year digits method?

a. P64M

c. P80M

b. P23M

d. P76M

133.) A machine cost P7,350 has a life of 8 years and has a salvage value of P350 at the end of 8 years. Determine its book value at the end of 4 years using sum years digit method.

a. P3,476.90

c. P6,543.21

b. P2,294.44

d. P5,455.01

134.) A certain equipment costs P7,000 has an economic life of n years and a salvage value P350 at the end of n years. If the book value at the end of 4 years is equal to P2197.22, compute for the economic life of the equipment using the sum of years digit method.

a. 10 years

c. 8 years

b. 16 years

d. 11 years

135.) A company purchased an asset for P10000 and plans to keep it for 20 years. If the salvage value is zero at the end of the 20th year, what is the depreciation in the third year? Use sum of years digit method.

a. P1000

c. P938

b. P857

d. P747

136.) An equipment costs P7000 and has a life of 8 years and salvage value of x after 8 years. If the book value of the equipment at the 4th year is equal to P2197.22, compute the salvage value x using the sum of years digit method.

a. P594

c. P350

b. P430

d. P290

137.) ABC Corporation makes it policy that for every new equipment purchased, the annual depreciation should not exceed 20% of the first cost at any time without salvage value. Determine the length of service if the depreciation used is the SYD Method.

a. 9 years

c. 12 years

b. 10 years

d. 19 years

138.) A machine having a certain first cost has a life of 10 years and a salvage value of 6.633% of the first cost at the end of 10 years. If it has a book value of P58,914 at the end of the 6th year, how much is the first cost of the machine if the constant percentage of declining value is used in the computation for its depreciation.(Matheson's Method)

a. P600,000

c. P100,000

b. P300,000

d. P900,000

139.) A machine costing P720,000 is estimated to have a life of 10 years. If the annual rate of depreciation is 25%, determine the total depreciation using a constant percentage of the declining balance method.

a. P679,454.27

c. P532,825.73

b. P432,725.45

d. P764,243.33

140.) An earth moving equipment that cost P90,000 will have an estimated salvage value of P18,000 at the end of 8 years. Using double-declining balance method, compute the book value and the total depreciation at the end of the 5th year.

a. P21,357.42 ; P68,642.58

c. P24,362.48 ; P65,637.52

b. P15,830.34 ; P74,169.66

d. P19,442.78 ; P70,557.22

141.) A certain office equipment has a first cost of P20,000 and has a salvage value of P1,000 at the end of 10 years. Determine the depreciation at the end of the 6th year using Sinking fund method at 3% interest.

a. P10,720

c. P11,680

b. P12,420

d. P9,840

142.) An equipment which cost P200,000 has a useful life of 8 years with a salvage value of P25,000 at the end of its useful life. If the depreciation at the first year is P21,875, what method is used in the calculation of depreciation?

a. Straight Line

c. Declining Balance

b. Sinking Fund

d. Sum of Years Digit

143.) An equipment costs P8,000 has an economic life of 8 years and salvage value of P400 at the end of 8 years. The first year depreciation amounts to P1,688.89. What method is used in the calculation of the depreciation?

a. Straight Line

c. Declining Balance

b. Sinking Fund

d. Sum of Years Digit

144.) The original cost of a certain machine is P150,000 and has an economic life of 8 years with a salvage value of P9,000 at that time. If the depreciation of the first year is equal to P44,475, what method is used in the calculation of the depreciation?

a. Straight Line

c. Declining Balance

b. Sinking Fund

d. Sum of Years Digit

145.) A machine has a first cost of P140,000 and a life of 8 years with a salvage value of P10,000 at the end of its useful life. If the depreciation at the first year amounts to P35,000, what method is used in the calculation of depreciation?

a. Double Declining Balance

c. Straight Line

b. Declining Balance

d. Sum of Years Digit

146.) A hydraulic machine cost P180,000 and has a salvage value of P15,000 at the end of its useful life which is 12 years. If the depreciation at the first year is P9,780.71, what method is used in computing the depreciation. Assume money is worth 6% annually.

a. Straight Line

c. Declining Balance

b. Sinking Fund

d. Sum of Years Digit

147.) An equipment costs P480,000 and has a salvage value of 10% of its cost at the end of its economic life of 35,000 operating hours. In the first year, it was used for 4,000 hours. Determine its book value at the end of the first year.

a. P430,629.00

c. P418,360.00

b. P380,420.00

d. P376,420.00

148.) An equipment costs P480,000 and has a salvage value of 10% of its cost at the end of its economic life of 36,000 operating hours in a period of 5 years. In the first year of service, it was used for 12,000 hours. If at the end of the 2nd year it was used for 15,000 hours, find the depreciation at the second year.

a. P180,000

c. P190,000

b. P160,000

d. P150,000

149.) A certain machine cost P40,000 and has a life of 4 years and a salvage value of P5000. The production output of this machine in units per year is 1000 units for the first year, 2000 units for the second year, 3000 units for the third year, and 4000 units for the fourth year. If the units produced are in uniform quality, what is the depreciation charge at the end of the fourth year.

- a. **P14,000**
- b. P13,000
- c. P15,000
- d. P16,000

150.) A lathe machine costs P300,000 brand new with a salvage value of x pesos. The machine is expected to last for 28500 hours in a period of 5 years. In the first year of service it was used for 8000 hours. If the book value at the end of the first year is P220,000, compute for the salvage value x in pesos.

- a. **P15,000**
- b. P18,000
- c. P12,000
- d. P20,000

151.) A certain machine cost P40,000 and has a life of 4 years and a salvage value of P5000. The production output of this machine in units per year is first year 1800 units, second year 2200 units, third year 3000, and fourth year 4000 units. If the units produced are of uniform quality, what is the depreciation charge at the end of 4th year?

- a. **P12,727.27**
- b. P15,350.23
- c. P16,420.43
- d. P17,200.98

152.) A lathe machine cost P300,000 with a salvage value of P15,000 is expected to last for 285000 hours in a period of 5 years. In the first year of service it was used for 8000 hours. Compute the book value of the machine at the end of the first year.

- a. **P292,000**
- b. 200,000
- c. P250,000
- d. P323,000

153.) A machine costing P280,000 has a useful life of 20,000 hrs. at the end of which its salvage value is P30,000. In the first year, it was used for 2080 hrs, in the second year, 3160 hrs. Find the second depreciation cost in pesos.

- a. P23,520 c. P39,500
b. P25,252 d. P35,400

154.) An equipment costs P400,000 and has a life of 30,000 hrs at the end of which its salvage value is x pesos. In the first year, it was used for 6240 hrs. The book value at the end of the first year was P325,120. Find the value of x.

- a. P40,629 c. P40,000
b. P30,420 d. P30,000

155.) An engineering firm from purchased, 12 years ago, a heavy planner for P50,000 with no salvage value. As the life of the planner was 20 years, a straight line depreciation reserve has been provided on that basis. Now the firm wishes to replace the old planner with a new one possessing several advantages. It can sell the old planner for P10,000. The new one will cost P100,000. How much new capital will be required to make the purchase?

- a. P60,000 c. P66,000
b. P55,000 d. P57,000

156.) Ten years ago, a contractor was able to purchase a crane whose capacity is 2000 tons costing P125 per ton. The life was estimated to be 15 years with a salvage value of 10% of the cost. A market has been found for the old crane for P80,000. If the depreciation has been figured on a straight line basis what is the difference between the depreciation book value of the old crane and its sale value.

- a. P20,000 c. P15,000
b. P30,000 d. P10,000

157.) What is the nominal value of interest compounded continuously for a period of 5 years of an equal payment series if the capital recovery factor is equal to 0.2385787.

- a. 6% c. 5%
b. 4% d. 8%

158.) What is the nominal rate of interest compounded continuously for a period of 5 years of an equal payment series if the sinking fund factor is equal 0.180519?

a. 5%

c. 6%

b. 4%

d. 8%

159.) Compute the number of years so that the capital recovery factor of a uniform payment series be equal to 0.218638 if money is worth 3% compounded continuously.

a. 5

c. 6

b. 4

d. 3

160.) A manufacturing firm wishes to give each 80 employee a holiday bonus. How much is needed to invest monthly for a year at 12% nominal interest rate, compounded monthly, so that each employee will receive a P2000 bonus?

a. P12,608

c. P12,600

b. P12,615

d. P12,300

161.) An instructor plans to retire in one year and want an account that will pay him P25000 a year for the next 15 years. Assuming 6% annual effective interest rate, what is the amount he would need to deposit now? (The fund will be depleted after 15 years)

a. P249,000

c. P248,500

b. P242,806

d. P250,400

162.) Ryan invest P5,000 at the end of each year in an account which gives a nominal annual interest of 7.5%, compounded continuously. Determine the total worth of his investment at the end of 15 years.

a. P133,545.58

c. P126,336.42

b. P142,647.28

d. P135,429.64

163.) A car dealer advertise the sale of a car model far a cash price of P280,000. If purchased in installment, the required down payment is 15% and balance payable in 18 equal monthly installments at an interest rate of 1.5% per month. How much will be the required monthly payments?

a. P15,185.78

c. P10,972.33

b. P11,588.72

d. P15,558.12

164.) How much must be deposited at 6% each year beginning Jan 1, year 1, in order to accumulate P5,000 on the date of the last deposit, Jan 1, year 6?

a. P751

c. P715

b. P717

d. P775

165.) In anticipation of a much bigger volume of business after 10 years, a fabrication company purchased an adjacent lot for its expansion program where it hopes to put up a building projected to cost P4,000,000 when it will be constructed 10 years after. To provide for the required capital expense, it plans to put up a sinking fund for the purpose. How much must the company deposit each year if the interest to be earned is computed at 15%

a. P197,008.25

c. P177,009.25

b. P199,090.25

d. P179,008.25

166.) Rainer Wandrew borrowed P50,000 from Social Security System, in the form of calamity loan, with interest at 8% quarterly installments for 10 years. Find the quarterly payments.

a. P1827.79

c. P1287.78

b. P1892.18

d. P1972.36

167.) For having been loyal, trustworthy, and efficient, the company has offered a superior yearly gratuity pay of P20,000 for 10 years with the first payment to be made one year after his retirement. The supervisor, instead, requested that he be paid a lump sum, on the date of his

retirement, having less interest that the company would have earned if the gratuity is to be paid in yearly basis. If interest is 15%, what is the equivalent lump sum that he could get?

a. P100,375.37

c. P101,757.37

b. P100,735.37

d. P100,575.37

168.) If P500 is invested at the end of each year for 6 years, at an annual interest rate of 7%, what is the total peso amount available upon the deposit of the sixth payment?

a. P3,210

c. P3,000

b. P3,577

d. P4,260

169.) A series of year and payments extending over eight years are as follows: P10,000 for the first year, P20,000 for the second year, P50,000 for the third year, and P40,000 for each year from fourth year through the 8th year. Find the equivalent annual worth of these payments if the annual interest is 8%.

a. P44,800.00

c. P35,650.00

b. P30,563.00

d. P33,563.85

170.) In five years, P18,000 will be needed to pay for a building renovation,. In order to generate this sum, a sinking fund consisting of three annual payments is established now. For tax purposes, no further payments will be made after three years. What payments are necessary if money is worth 15% per annum?

a. P2870

c. P5100

b. P3919

d. P2670

171.) San Miguel Corporation purchases P400,00 worth of equipment in year 1970. It decided to use straight line depreciation over the expected 20 year life of the equipment. The interest rate is 16%. If the overall tax rate is 35% , what is the present worth of the tax shield?

a. P40,298.68

c. P45,450.28

b. P41,501.89

d. P51,410.37

172.) A local firm is establishing a sinking fund for the purpose of accumulating a sufficient capital to retire its outstanding bonds and maturity. The bonds are redeemable in 10 years, and their maturity value is P150,000. How much should be deposited each year if the fund pays interest at the rate of 3%?

a. P12,547.14

c. P14,094.85

b. P13,084.58

d. P16,848.87

173.) A machine costs P20,000 today and has an estimated scrap value of P2,000 after 8 years. Inflation is 2% per year. The effective annual interest rate earned on money invested is 8%. How much money needs to be set aside each year to replace the machine with an identical model 8 years from now?

a. P2,808.88

c. P3,920.00

b. P3,290.00

d. P3,610.00

174.) A machine is under consideration for investment. The cost of the machine is P25,000. Each year it operates, the machine generates P15,000. Given an effective annual interest rate of 18%, what is the discounted payback period, in years, on the investment of the machine?

a. 1.75 years

c. 1.67 years

b. 3.17 years

d. 2.16 years

175.) Company A purchases P200,000 of equipment in year zero. It decides to use straight line depreciation over the expected 20 year life of the equipment. The interest rate is 14%. If the average tax rate is 40%, what is the present worth of the depreciation tax held?

a. P30,500

c. P39,700

b. P26,500

d. P40,000

176.) Instead of paying P100,000 in annual rent for office space at the beginning of each year for the next 10 years, an engineering firm has decided to take out a 10 year P100,000 loan for a new building at 6% interest. The firm will invest P100,000 of the rent saved and earned 18% annual interest on that amount. What will be the difference between the revenue and expenses?

a. Firm will need P17,900 extra

c. Firm will have P21,500 left over

b. Firm will break even

d. Firm will need P13,000 extra

177.) A man inherited a regular endowment of P100,000 every end of 3 months for x years. However, he may choose to get a single lump of P3,702,939.80 at the end of 4 years. If the rate interest was 14% compounded quarterly, what is the value of x?

a. 13 years

c. 12 years

b. 10 years

d. 11 year

178.) A service car whose car price was P540,000 was bought with a down payment of P162,000 and monthly installments of P10,847.29 for 5 years. What was the rate of interest if compounded monthly?

a. 30%

c. 20%

b. 24%

d. 15%

179.) What is the present worth of a 3 year annuity paying P3000 at the end of each year, with interest at 8% compounded annually?

a. P7,731.29

c. P7,371.29

b. P9,731.79

d. P9,371.79

180.) A man paid a 10% down payment of P200,000 for a house and lot and agreed to pay the balance on monthly installments for 5 years at an interest rate of 15% compounded monthly. What was the monthly installment on pesos?

a. P44,528.34

c. P43,625.92

b. P42,821.87

d. P45,825.62

181.) A man inherited a regular endowment of P100,000 every end of 3 months for 10 years. However, he may choose to get a single lump sum payment at the end of 4 years. How much is this lump sum if the cost of money is 14% compounded quarterly?

a. P3,702,939.73

c. P3,502,546.23

b. P3,802,862.23

d. P3,602,431.73

182.) A man paid 10% down payment of P200,000 for a house and lot and agreed to pay the balance on monthly installments for x years at an interest rate of 15% compounded monthly. If the monthly installment was P42,821.87, find the value of x.

a. 5 years

c. 8 years

b 9 years

d. 7 years

183.) A father wishes to provide P4000 for his son on his 21st birthday. How much should he deposit every 6 months in a savings bank which pays 3% compounded semi-annually if the first deposit is made when the son is 3.5 years old?

a. P84.61

c. P45.76

b. P94.24

d. P78.68

184.) An employee obtained a loan of P100,000 at the rate of 6% compounded in order to build a house. How much must he pay monthly to amortize the loan within a period of 10 years?

a. P8,322.07

c. P2,494.04

b. P1,101.80

d. P3,452.90

185.) If money is worth 5% compounded semi-annually, find the present value of a sequence of 12 semi-annual payments of P500 each, the first of which is due at the end of 4.5 years.

a. P4,209.51

c. P6,240.62

b. P5,602.62

d. P7,161.42

186.) An annual deposit of P1270 is placed on the fund at the end of each year for 6 years. If the fund invested has a rate of interest of 5% compounded annually, how much is the worth of this fund at the end of 9 years?

a. P12,000

c. P11,000

b. P10,000

d. P14,000

187.) A fund for replacement of a machinery in a plant must have P30,000 at the end of 9 years. An equal deposit of P2,965 was made on the fund at the end of each 6 months for 4 years only. How much is the rate of the fund invested if it is compounded semi-annually?

a. 3.5%

c. 5.5%

b. 4.5%

d. P6.5%

188.) In purchasing a house, a man makes a cash payment and takes out a mortgage for P10,000 on which he agrees to pay P200 at the end of each month for 5 years. At what interest rate compounded monthly was interest charged on the mortgage?

a. 8.41%

c. 7.68%

b. 7.42%

d. 9.60%

189.) How much money must you invest in order to withdraw P2000 annually for 10 years if the interest rate is 9%?

a. P12,853.32

c. P12,835.32

b. P12,881.37

d. P12,385.32

190.) If interest is at rate of 8% compounded semi-annually, what sum must be invested at the end of each 6 months to accumulate a fund of P10,000 at the end of 8 years?

a. P458.20

c. P498.23

b. P532.11

d. P753.10

191.) A Corporation will invest P5000 in a fund at the end of each 6 months to accumulate P100,000 to initiate a plant overhaul. If the fund is invested at 6.5% compounded semi-annually, how many years will the fund contain at least P100,000?

a. 8 years

c. 10 years

b. 6 years

d. 9 years

192.) A piece of machinery can be bought for P10,000 cash, or for P2000 down and payments of P750 per year for 15 years. What is the annual interest rate for time payments?

a. 4.61%

c. 5.71%

b. 3.81%

d. 11.00%

193.) To accumulate a fund of P8000 at end of 10 years, a man will make equal annual deposit of P606.94 in the fund at the end of each year. How much is the rate of interest if it is compounded annually?

a. 6%

c. 10%

b. 8%

d. 12%

194.) A purchasing engineer of a certain firm is to purchase a second hand truck for P75,000. A dealer offers cash payment of P5,000 and P6486 per month for 12 months. Another dealer offered under the same condition with 0.75% interest per month for 12 months of the unpaid balance. Which offer should the engineer choose and what is the rate of interest?

a. 0.62%

c. 0.75%

b. 1.66%

d. 0.40%

195.) If a low cost house and lot worth P87,000 were offered at 10% down payment and P500 per month for 25 years. What is the effective monthly interest rate on the diminished balance?

a. 0.492%

c. 0.531%

b. 0.687%

d. 0.683%

196.) A house and lot can be acquired with a down payment of P500,000 and a yearly payment P100,000 at the end of each year for a period of 10 years, starting at the end of 5 years from the date of purchase. If the money is worth 14% compounded semi-annually, what is the cash price of the property?

a. P810,000

c. P801,900

b. P808,836

d. P805,902

197.) A man bought a brand new car for P650,000 on installment basis at the rate of 10% per annum on the unpaid balance. If he paid a down payment of P120,000 cash and proposed to pay the balance in equal monthly payment for 2 years, what should be his monthly payment?

a. P54,323.03

c. P24,447.03

b. P34,532.94

d. P83,534.32

198.) A businessman is faced with the prospect of fluctuating future budget for the maintenance of the generator. During the first 5 years, P1,000 per year will be budgeted. During the second 5 years, the annual budget will be P1500 per year. In addition, P3500 will be budgeted for an overhaul of the machine at the end of the fourth year and another P3500 for an overhaul at the end of 8th year. Assuming compounded interest at 6% per annum, what is the equivalent annual cost of maintenance?

a. P1,888.87

c. P1,777.38

b. P1,738.34

d. P1,999.34

199.) A parent on the day the child is born wishes to have to determine what lump sum would have to be paid into an account bearing interest at 5% compounded annually, in order to withdraw P20,000 each on the child's 18th, 19th, 20th, and 21st birthdays.

a. P35,941.73

c. P30,941.73

b. P33,941.73

d. P25,941.73

200.) If money is worth 5% compounded semi-annually, find the present value of a sequence of 12 semi-annual payments of P500 each, the first of which is due at the end of 4.5 years.

a. P4,209.51

c. P3,958.48

b. P5,038.29

d. P4,936.39

201.) A businessman borrowed P300,000 with interest at the rate of 6% compounded semi-annually. He agrees to discharge his obligation by paying a series of 8 equal semi-annual payments, the first being due at the end of 5.5 years. Find the semi-annual payment.

a. P69,475.53

c. P73,083.59

b. P57,434.78

d. P40,922.40

202.) A man borrowed P300,000 from a lending institution which will be paid after 10 years at an interest rate of 12% compounded annually. How much should he deposit to a bank monthly in order to discharge his debt 10 years hence?

a. P2,798.52

c. P4,672.31

b. P3,952.50

d. P5,093.06

203.) What is the accumulated amount of the five year annuity paying P6000 at the end of each year, with interest at 15% compounded annually?

a. P40,454.29

c. P41,454.29

b. P41,114.29

d. P40,544.29

204.) A man owes P12,000 today and agrees to discharge the debt by equal payments at the beginning of each 3 months for 8 years, where this payments include all interest at 8% payable quarterly. Find the quarterly payment.

a. P501.30

c. P498.20

b. P602.40

d. P701.60

205.) A man will deposit P200 with a savings and loan association at the beginning of 3 months for 9 years. If the association pays interest at the rate of 5.5% quarterly, find the sum to his credit just after the last deposit.

a. P9236

c. P9563

b. P9363

d. P9684

206.) At what interest rate payable quarterly will payments of P500 at the beginning of each 3 months for 7 years discharge a debt of P12500 due immediately?

a. 3.44%

c. 5.44%

b. 4.33%

d. 6.33%

207.) A P1,000,000 issue of 3% 15 years bonds was sold at 95%. If miscellaneous initial expenses of the financing were P20,000 and yearly expenses of P2,000 is incurred, what is the true cost the company is paying for the money it borrowed?

a. 3.8%

c. 4.0%

b. 4.2%

d. 2.6%

208.) A man was offered a Land Bank certificate with a face value of P100,000 which is bearing interest of 8% per year payable semi-annually and due in 6 years. If he wants to earn 6% semi-annually, how much must he pay the certificate?

a. P90,614.92

c. P90,061.49

b. P96,041.92

d. P99,814.92

209.) The National Irrigation Administration undertakes the construction of an irrigation project in the province of oriental Mindoro which will cover an area of 10,000 hectares and estimated cost P10,000,000 which was borrowed from the World Bank at the start of the construction. The construction will last 30 years with no salvage value. Bonds will be paid at 4% per annum compounded annually for 30 years. The construction of project will take 4 years. Insurance operation and maintenance of the system will cost P120,00 per year. Interest on sinking fund is 6%. How much should each hectare be charged?

a. P64.65

c. P60.66

b. P66.56

d. P45.65

210.) A company issued 50 bonds of P1,000 face value each redeemable at par at the end of 15 years to accumulate the funds required for redemption. The firm established a sinking fund consisting of annual deposits, the interest rate of the fund being 4%. What was the principal in the fund at the end of 12th year?

a. P35,983

c. P41,453

b. P38,378

d. P37,519

211.) An oil well which could produce a net income of P15,000,000 per year for 25 years is being considered to be purchased by a group of businessmen. If the return on investment is targeted to be 20% out of the net income and the sinking fund at 18% interest is to be established to recover the investment, how much must be paid to the oil well?

a. P73,921,184.58

c. P70,215,276.17

b. P73,297,198.28

d. P75,973,209.26

212.) An investor pays P1,100,000 for a mine which will yield a net income of P200,000 at the end of each year for 10 years and then will become useless. He accumulated a replacement fund to recover his capital by annual investments at 4.5%. At what rate(%) does he receive interest on his investment at the end of each year?

a. 10.04%

c. 11.5%

b. 8.5%

d. 14.5%

213.) A certain marble mine property has an estimated life of 30 years at a projected annual output of 3000 cubic meters of marble blocks. Estimated management cost per year is placed at P1,500,000 and operating cost of the quarry and processing plant is P8000 per cubic meter. The finished products, tiles and slabs, can be sold for P12,000 per cubic meter if exported. Determine the present valuation of the mineral property if the sinking fund rate of interest is 15% and the annual dividend rate is to be 12%.

a. P85,854,317.13

c. P85,444,313.27

b. P85,554,371.18

d. P85,345,365.28

214.) The annual dividend from a mine will be P75,000 until the ore is exhausted at the end of 30 days, and the mine becomes useless. Find the price of the mine to yield the investor 6.5%, if he accumulated a replacement fund to restore his capital by annual investment at 5%.

a. P936,897.63

c. P982,286.29

b. P836,286.39

d. P735,385.53

215.) The privileges of a patent will last for 20 more years and the royalty from it will be P60,000 at the end of each year during that time. Find the value of his patent rights to an investor who desires interest at 8% on his investment and will accumulate a capital replacement fund at 5%.

a. P594,297.20

c. P405,384.28

b. P544,254.30

d. P629,289.40

216.) The annual income from the mine is P100,000 and the life of the mine is 20 years. Find the price that an investor is willing to pay for the mine if he considers that money is worth 5% and if he is to accumulate a sinking fund at 6% in order to replace the capital he invested.

a. P1,295,595.57

c. P1,529,847.29

b. P1,995,959.97

d. P1,159,287.92

217.) An untreated electric wooden pole that will last 10 years under a certain soil conditions costs P1200. If a treated pole will last for 20 years, what is the maximum justifiable amount that can be paid for the treated pole, if the maximum return on investment is 12%? Consider annual taxes and insurance amount to be 1% at first cost.

a. P1,559.50

c. P1,593.20

b. P1995.28

d. P1,959.30

218.) A company must relocate one of its factories in three years. Equipment for the loading dock is being considered for purchase. The original cost is P20,000,000, the salvage value of the equipment after three years is P8,000. The company's rate of return on money is 10%. Determine the capital recovery rate per year.

a. P5115

c. P5625

b. P4946

d. P4805

219.) A new engine will cost P12,000 with an estimated life of 15 years and a salvage value of P800 and guaranteed to have an operating cost of P3500 per year. The new engine is considered as a replacement of the old one. The old engine had a total annual cost of P5,200 to operate. Determine the rate of return of the new investment using 6% sinking fund to recover depreciation, if the old engine could be sold now for P2000.

a. 12.19%

c. 10.47%

b. 14.29%

d. 15.92%

220.) A corporation uses a type of motor truck which costs P5000 with a life of 2 years and final salvage value of P800. How much could the corporation afford to pay for another type of truck of the same purpose for a life of 3 years with a final salvage value of P1000? Money is worth 4%

a. P8450.66

c. P6398.24

b. P7164.37

d. P9034.56

221.) A granite quarry purchased of P1,600,000 is expected to be exhausted at the end of 4 years. If the resale value of the land is P100,000, what annual income is required to yield an investment rate of 12%? Use a sinking fund rate of 3%

a. P551,544

c. P550,540

b. P552,550

d. P553,420

222.) A machine has a first cost of P800,000 and a salvage value of P50,000 at the end of its life after 10 years. The annual saving for the use of the machine amounts to P124,900.97. If the

annual maintenance of the machine is P4000 and the sinking fund to recover depreciation earns 6%, compute for the rate of return of investment.

a. 8%

c. 6%

b. 7%

d. 9%

223.) The first cost of a certain equipment is P324,000 and a salvage value of P50,000 at the end of its life of 4 years. If money is worth 6% compounded annually, find the capitalized cost.

a. P1,367,901.15

c. P936,431.16

b. P1,427,846.17

d. P843,916.27

224.) A multi million project can purchase heavy duty trucks for P600,000 each. It is estimated to have a salvage value of P60000 at the end of its life which is 10 years. Maintenance and operating cost including the driver is estimated to cost an average of P3000 per year. The contractor however can hire a similar truck and its operator for P420 per day. If money is worth 12%, how many days per year must the service of the truck be required to justify the buying of the trucks. Use annual cost method.

a. 252 days

c. 243 days

b. 225 days

d. 255 days

225.) Each removal from a ditch in city streets is accomplished by a machine loading into trucks. This machine will cost P20,000 with labor, fuel, oil, and maintenance amounting to P5000 per year. Life of the machine is estimated to be 5 years and no salvage value. The contractor however can hire a similar machine and its operator at P340 per day. How many days per year must the services of the machine be required to justify the purchase of their new machine if the money is worth 10%. Use annual cost method.

a. 248 days

c. 284 days

b. 428 days

d. 482 days

226.) A contractor can purchase a heavy-duty truck for P500,000. Its estimated life is 8 years and estimated salvage value of P6000. Maintenance is estimated to be P2500 annually including the

cost of driver and fuel maintenance. The contractor can hire a similar unit and driver for P750 a day. If interest is taken at 8%, how many days per year must be services of a dump truck be required to justify the purchase of a truck? Use annual cost method.

a. 112 days

c. 132 days

b. 121days

d. 211 days

227.) It cost P50,000 at the end of each year to maintain a section of Kennon road. If money is worth 10%, how much would it pay to spend immediately to reduce the annual cost to P10,000?

a. P410,000

c. P400,000

b. P554,000

d. P453,000

228.) If money is worth 12% compounded quarterly, what is the present value of the perpetuity of P1,000 payable monthly?

a. P453,876.80

c. P342,993.70

b. P100,976.23

d. P100,993.78

229.) Find the present value, in peso, of a perpetuity of P15,000 payable semi-annually if money is worth 8% compounded quarterly.

a. P372,537

c. P373,767

b. P374,977

d. P371,287

230.) A businessman invested in a medium scale business which cost him P47,000. The net annual return estimated is P14,000 for each of the next 8 years. Compute the benefit cost ratio if the annual rate of interest is 18%.

a. 1.21

c. 2.23

b. 1.76

d. 1.11

231.) A project costs P100,000. The benefit at the end of each year for a period of 5 years is equal to P40,000. Assuming money is worth 8% with no salvage value, compute the benefit cost ratio.

a. 1.597

c. 1.875

b. 2.124

d. 1.125

232.) Compute the benefit cost ratio of the following project:

Project cost = P80,000

Gross income = P25,000 per year

Opening Cost = P6,000 per year

Salvage Value = 0

Life of Project = 10 years

Rate of Interest = 12%

a. 1.34

c. 2.23

b. 1.78

d. 1.11

233.) A local factory assembling calculators produces 100 units per month and sells them at P1,800 each. Dividends are 8% on the 8000 shares with par value of P250 each. The fixed operating cost per month is P25,000. Other costs are P1,000 per unit. Determine the break even point. If only 200 units were produced per month, determine the profit.

a. 48 ; P121,666.67

c. 50 ; P112,656.67

b. 45 ; P122,676.88

d. 48 ; P212,666.67

234.) General Electric Company, which manufactures electric motor, has a capacity of producing 150 motors a month. The variable costs are P4,000 per month, the average selling price of the motor is P750 per motor. Fixed costs of the company amounts to P78,000 per month which includes all taxes. Determine the number of motors to be produced per month to break even and the sales volume in pesos at this point.

a. 110 units

c. 105 units

b. 120 units

d. 115 units

235.) A plywood manufacturer produces a piece of plywood at a labor cost of P0.50 and material at P3.00. The fixed charges on business are P50,000 a month and the variable cost is P0.50 per piece. If one plywood sells for P6.00 each, how many pieces must be produced each month for the manufacturer to break even?

a. 25,000

c. 24,000

b. 27,000

d. 22,000

236.) The profit on a product selling for P8.20 is 10% of the selling price. What percentage increase in production cost will reduce the profit by 60%?

a. 6.67%

c. 7.66%

b. 6.76%

d. 7.66%

237.) A local company assembling stereo radio cassette produces 300 units per month at a cost of P800 per unit. Each stereo radio cassette sells for P1,200. If the firm makes a profit of 10% on its 10,000 shares with a par value of P200 per share, and the total fixed cost is P20,000 per month. What is the break even point and how much is the loss or profit if only 100 units are produced in a given month?

a. 92 ; P3,333.33

c. 91 ; P4,333.44

b. 90 ; P3,444.33

d. 93 ; P4,444.33

238.) A certain operation is now performed by hand, the labor cost per unit is P0.54 and the annual fixed charge for tool used is estimated at P100 per year. A machine that is being considered for this job will cost P2,400, have a salvage value of P100 at any time and a fixed annual cost of P200. With it, labor cost is P0.22 per unit. For what number of units of product per year at zero interest and life of 6 years for the machine will the annual cost of the two methods break even?

a. 1510 units

c. 1150 units

b. 1050 units

d. 1551 units

239.) A shoe manufacturer produces a pair of shoes at a labor cost of P9.00 a pair and a material cost of P8.00 a pair. The fixed charges on the business is P90,000 a month and the variable cost is P4.00 a pair. If the shoes sells at P30 a pair, how many pairs must be produced each month for the manufacturer to break even?

a. 10,000

c. 11,000

b. 12,000

d. 13,000

240.) An item which can be sold for P36.00 per unit wholesale is being produced with the following cost data; labor cost, P10 per unit; material cost, P15.00 per unit; fixed charges, P10,000; variable cost, P8.00 per unit. What is the break even point sales volume and the break even sales volume if one out of every ten units produced is defective and is rejected with only full recovery on materials?

a. 333.33 ; 397

c. 353.33 ; 333

b. 345.33 ; 379

d. 322.33 ; 377

241.) A certain firm has the capacity to produce 650,000 units of product per year. At present, it is operating at 62% capacity. The firm's annual income is P4,160,000. Annual fixed cost is P1,920,000 and the variable cost is equal to P3.56 per unit of product. What is the firm's annual profit or loss and what volume of sales does the firm break even?

a. P805,320 ; P3,354,680

c. P803,550 ; P3,276,398

b. P850,330 ; P3,543,683

d. P800,286 ; P3,186,586

242.) The direct labor cost and material cost of a certain product are P300 and P400 per unit, respectively. Fixed charges are P100,000 per month and other variable costs are P100 per unit. If the product is sold at P1,200 per unit, how many units must be produced and sold to break even?

a. 250 units

c. 300 units

b. 200 units

d. 260 units

243.) XYZ Corporation manufacturers book cases that it sells for P65.00 each. It costs XYZ P35,000 per year to operate its plant. This sum includes rent, depreciation charges on equipment

and salary payments. If the cost to produce one bookcase is P50.00, how many cases must be sold each year for XYZ to avoid taking a loss?

a. 2334

c. 750

b. 539

d. 2233

244.) A telephone switchboard 100 pair cable can be made up with either enameled wire or tinned wire. There will be 400 soldered connections. The cost of soldering a connection on the enameled wire will be P1.65, on the tinned wire, it will be P1.15. A 100 pair cable made up with enameled wire cost P0.55 per lineal foot and those made up to tinned wire cost P0.76 per lineal foot. Determine the length of cable run in feet so that the cost of each installation would be the same.

a. 1121.06 ft

c. 864.92 ft

b. 1001.25 ft

d. 952.38 ft

245.) A company which manufactures electric motors has a production capacity of 200 motors a month. The variable costs are P150 per motor. The average selling price of the motor is P275. Fixed costs of the company amounts to P20,000 per month which included taxes. The number of motors that must be sold each month to break even is closest to:

a. 40

c. 80

b. 150

d. 160

246.) Steel drums manufacturer incurs a yearly fixed operating cost of P200,000. Each drum manufactured cost P160 to produce and sells for P200. What is the manufacturer's break even sales volume in drum per year? If they could manufacture 7,000 drums per year, determine the amount of profit or loss.

a. 1250 ; P70,000

c. 5,000 ; P80,000

b. 2500 ; P60,000

d. 1,000 ; P75,000

247.) A new Civil Engineer produces a certain construction material at a labor cost of P16.20 per piece, material cost of P38.50 per piece and variable cost of P7.40 per piece. The fixed

charges on the business is P100,000 a month. If he sells the finished product at P95.00 each, how many pieces must be manufactured each month to break even?

a. 3040

c. 3004

b. 3400

d. 4300

248.) A manufacturer produces certain items at a labor cost per unit of P315, material cost per unit of P100, variable cost of P3.00 each. If the item has a selling price of P995, how many units must be sold to break even if the monthly overhead is P461,600?

a. 800

c. 700

b. 600

d. 900

249.) A cement firm with production capacity of 130 tons per day (24 hrs) of clinker has its burning zone about 45 tons of magnesium chrome bricks being replaced periodically, depending on some operational factors and the life of the bricks. If locally produced bricks cost costing P30,000 per ton and have a life of 6 months, determine the more economical bricks and by how much?

a. P6,075,000

c. P6,505,000

b. P6,750,000

d. P6,057,000

250.) An equipment installation job in the completion stage can be completed in 40 days of 8 hour day work, with 40 men working. With the contract expiring in 30 days, the mechanical engineer contractor decided to add 10 men on the job, overtime not being permitted. If the liquidated damages is P2,000 per day of delay, and the men are paid P80 per day, how much money would he save if he will add workers?

a. P16,000

c. P16,500

b. P15,500

d. P16,000

251.) A fixed capital investment of P10,000,000 is required for a proposed manufacturing plant and an estimated working capital of P2,000,000. Annual depreciation is estimated to be 10% of

the fixed capital investment. Determine the rate of return on the total investment and the minimum pay out period if the annual profit is P2,500,000.

a. 20.83% ; 2.86

c. 23.80% ; 6.28

b. 20.38% ; 2.68

d. 23.08% ; 6.66

252.) A 500kw electric lighting plant cost P95 per kw installed. Fixed charges is 14%, operating cost is P0.013 per kw-hr. The plant averages 150kw for 5000 hour of the year, 420 kw for 1000 hour and 20kw for the remainder. What is the unit cost of production of electric energy?

a. P0.0184

c. P0.1840

b. P0.1084

d. P0.8104

253.) A mechanical engineer who was awarded a P450,000 contract to install the machineries of an oil mill failed to finish the work on time. As provided for in the contract, he has to pay a daily penalty equivalent to one fourth of one percent per day for the next ten days and one percent per day for every day thereafter. If the total penalty was P60750, how many days was the completion of the contract delayed?

a. 26 days

c. 30 days

b. 22 days

d. 24 days

254.) By selling balut at P5 per dozen, a vendor gains 20%. The cost of the eggs rises by 12.5%. If he sells at the same price as before, find his new gain %.

a. 6.6%

c. 7.7%

b. 5.5%

d. 7.6%

255.) In a certain department store, the monthly salary of a saleslady is partly constant and partly varies as the value of her sales for the month. When the value of her sales for the month is P10,000, her salary for that month is P900, when her monthly sales goes up to P12,000, her monthly salary goes up to P1,000. What must be the value of her sales for the month so that her salary for that month would be P2,000?

a. P32,000

c. P30,000

b. P35,000

d. P40,000

256.) An equipment installation job in the completion stage can be completed in 50 days of 8 hour day work, with 50 men working. With the contract expiring in 40 days, the mechanical engineer contractor decided to add 15 men on the job, overtime not being permitted. If the liquidated damages is P5,00 per day of delay, and the men are paid P150 per day, how much money would he save with the additional workers?

a. P44750

c. P44570

b. P47540

d. P45407

257.) Jojo bought a second hand Betamax VCR and then sold it to Rudy at a profit of 40%; Rudy then sold the VCR to Noel at a profit of 20%. If Noel paid P2,856 more than it cost Jojo, how much did Jojo pay for the unit?

a. P4200

c. P2400

b. P4400

d. P2200

258.) Dalisay Corporation's gross margin is 45% of sales. Operating expenses such as sales and administration are 15% of sales. Dalisay is in 40% tax bracket. What percent of sales is their profit after taxes?

a. 18%

c. 24%

b. 5%

d. 0%

259.) A manufacturer of sports equipment produces tennis rackets for which there is a demand of 200 per month. The production setup cost for each lot of racket is O300. IN addition, the inventory carrying cost for each racket is P24 per year. Using the Economic Order Quantity (EQQ) model, which is the best production batch size fro the rackets?

a. 245 units

c. 173 units

b. 71 units

d. 346 units

260.) A manufacturing firm maintains one product assembly line to produce signal generators. Weekly demand for the generators is 35 units. The line operates for 7 hours per day, 5 days per week. What is the maximum production time per unit in hours required of the line to meet the demand?

- a. **1 hour**
- b. 0.75 hours
- c. 3 hours
- d. 2.25 hours

261.) A businessman wishes to earn 7% on his capital after payment of taxes. If the income from an available investment will be taxed at an average of 42%, what minimum rate or return, before payment of taxes, must the investment offer to be justified?

- a. **12.1%**
- b. 10.7%
- c. 11.1%
- d. 12.7%

262.) A 200 hp generator is being considered for purchase. The generator will cost P320,000 with a life expectancy of 10 years, with an efficiency of 82%. The maintenance cost per year is P5,000. This generator is used for 300 hours per year and the cost of fuel, oil is P0.12 per kilowatt-hour. (1hp = 0.746kw). Assuming the generator will have no salvage value, what will be the monthly cost of maintaining the generator?

- a. P842.40
- b. **P962.52**
- c. P786.40
- d. P695.40

263.) An engineer buys a machine costing P500,000. Compute the capitalized cost if the machine has a life of 5 years and a salvage value of P80,000. Rate of interest is 12% per annum.

- a. P2,424,732
- b. **P1,050,934**
- c. P2,431,643
- d. P5,124,153

264.) A project costing P250,000 yields a yearly benefit of P80,000 for a period of 10 years with no salvage value at an interest rate of 6%. What is the benefit cost ratio?

- a. 4.24
- c. **2.36**

b. 3.85

d. 4.30

265.) A company constructed its factory with a fixed capital investment of P120M. The net income after the tax and depreciation is expected to be P23m per year. Annual depreciation cost is 10 % of fixed capital investment. Determine the payout period in years.

a. 3.04 years

c. 3.43 years

b. 2.54 years

d. 4.85 years

266.) A machinery costing P720,000 is estimated to have a book value of P40,545.73 when retired at the end of 10 years. Depreciation cost is computed using a constant percentage of the declining book value. What is the annual rate of depreciation?

a. 20%

c. 30%

b. 25%

d. 35%

267.) An asset is purchased for P9,000. Its estimated economic life is 10 years after which it will be sold for P1,000. Find the depreciation in the first three years using straight line method.

a. P2,400.00

c. P2,250.00

b. P2,412.34

d. P2,450.00

268.) An engineer bought an equipment for P500,000. He spent an additional amount of P30,000 for installation and other expenses. The estimated useful life of the equipment is 10 years. The salvage value is x% of the first cost. Using the straight line method of depreciation, the book value at the end of 5 years will be P291,500. What is the value of x?

a. 20%

c. 30%

b. 40%

d. 10%

269.) The initial cost of a paint sand mill, including its installation is P800,000. The BIR approved life of this machine is 10 years for depreciation. The estimated salvage value of the

mill is P50,000 and the cost of dismantling is estimated to be P15,000. Using straight line depreciation, what is the annual depreciation charge?

- a. P75,500 **c. P76,500**
- b. P76,000 d. P77,000

270.) The initial cost of a paint sand mill, including its installation is P800,000. The BIR approved life of this machine is 10 years for depreciation. The estimated salvage value of the mill is P50,000 and the cost of dismantling is estimated to be P15,000. Using straight line depreciation, what is book value of the machine at the end of 6 years?

- a. P341,000** c. P340,000
- b. P343,000 d. P342,000

271.) A unit of welding machine cost P45,000 with an estimated life of 5 years. Its salvage value is P2,500. Find its depreciation rate by straight line method.

- a. 18.89%** c. 19.58%
- b. 19.21% d. 19.89%

272.) A tax and duty free importation of a 30hp sand mill for painting manufacturing cost P360,000. Bank charges and brokerage cost P5,000. Foundation and installation costs were P25,000. Other incidental expenses amount to P20,000. Salvage value of the mills estimated to be P60,000 after 20 years. Find the appraisal value of the mill using straight line depreciation at the end of 10 years.

- a. P234,000 c. P234,500
- b. P235,000** d. P235,500

273.) An equipment costs P10,000 with a salvage value of P500 at the end of 10 years. Calculate the annual depreciation cost by sinking fund method at 4% interest.

- a. P721.54 **c. P791.26**
- b. P724.56 d. P721.76

274.) An equipment costs P50,000 with a salvage value of P250 at the end of 10 years. Calculate the annual depreciation cost by sinking fund method at 8% interest.

- a. P3123.53
- b. P3223.75
- c. **P3434.22**
- d. P3241.24

275.) An asset is purchased for P12,000. Its estimated economic life is 20 years after which it will be sold for P5,000. Find the depreciation in the first five years using straight line method.

- a. **P1,750**
- b. P1,412
- c. P1,250
- d. P1,450

276.) What is the difference of the amount 5 years from now for a 12% simple interest and 12% compound interest per year?(P8,000 accumulated)

- a. **P1298.73**
- b. P1281.24
- c. P1224.97
- d. P1862.76

277.) Find the discount if P5,500 is discounted for 9 months at 15% compounded quarterly.

- a. P2442.09
- b. P1248.24
- c. **P1883.66**
- d. P2451.99

278.) Find the ordinary simple interest at 7.5% on P5000 and the corresponding amount at the end of 59 days.

- a. P2145.24
- b. P2241.12
- c. **P5061.45**
- d. P5123.24

279.) Find the exact simple interest at 7.5% on P5000 and the corresponding amount at the end of 59 days.

a. P5187.24

c. P5021.45

b. P5221.12

d. P5060.60

280.) If P1050 accumulate P1275 when invested at a simple interest for 3 years. What is the rate of interest?

a. 4.21%

c. 6.73%

b. 5.85%

d. 7.14%

281.) Determine the exact simple interest on P5,000 investment for the period from January 15, 1996 to October 12, 1996 of the rate of interest in 18%.

a. P666.39

c. P632.40

b. P621.22

d. P636.29

282.) The exact simple interest of P5000, invested from June 21, 1995 to December 25, 1995, is P100. What is the rate of interest?

a. 2.4%

c. 2.7%

b. 3.2%

d. 3.9%

283.) The amount of P50,000 was deposited in the bank earning at 7.5% per annum. Determine the total amount at the end of 5 years if the principle and interest were not withdrawn during the period.

a. P71,781.47

c. P70,024.29

b. P24,257.75

d. P29,240.99

284.) Determine the future amount of P100 for 10.25 years at a rate of 5% compounded monthly.

a. P166.77

c. P163.12

b. P224.09

d. P214.12

285.) Determine the future amount of P100 for 10.25 years at a rate of 5% compounded quarterly.

a. P124.02

c. P182.42

b. P166.42

d. P175.10

286.) Determine the future amount of P100 for 10.25 years at a rate of 5% compounded semi-annually.

a. P153.29

c. P169.22

b. P165.90

d. P173.24

287.) Determine the future amount of P100 for 10.25 years at a rate of 5% compounded daily.

a. P129.24

c. P195.32

b. P166.94

d. P128.87

288.) What is the present worth of a P500 annuity starting at the end of the third year and continuing to the end of the fourth year, if the annual interest rate is 10%?

a. P717.17

c. P720.24

b. P252.91

d. P287.09

289.) Today a businessman borrowed money to be paid in 10 equal payments for 10 quarters. If the interest rate is 10% compounded quarterly and the quarterly payment is P2,000, how much did he borrow?

a. P24214.23

c. P15125.24

b. P24311.53

d. P17504.13

290.) What annuity is required over 12 years to equate with a future amount of P20,000? Assume $i=6\%$ annually.

- a. P1121.24
- b. P1244.22
- c. P2314.12
- d. P1185.54**

291.) Find the annual payment to extinguish a debt of P10,000 payable for 6 years at 12% interest annually.

- a. P2214.42
- b. **P2432.26**
- c. P2525.24
- d. P2044.83

292.) A bond issue of P50,000 in 10 years, bonds in P1000 units paying 10% interest in annual payments, must be retired by the use of sinking fund which earns 8% compounded annually. What is the total cost for the interest and retirement of the entire bond issue.

- a. P82,241
- b. P84,150
- c. P82,214
- d. P84,510**

293.) Determine the amount of interest you would receive per period if you purchase a 6%, P5000 bond which matures in 10 years with interest payable quarterly.

- a. P24
- b. P98
- c. P75**
- d. P52

294.) A corporation floats callable bonds amounting to P100,000 each having a par value of P500, the bond rate is 7.5% and the bonds are to be retired in 5 years, the annual payments being as nearly equal as possible. What is the total payment for the whole period of 5 years?

- a. P123,625**
- b. P124,241
- c. P214,124
- d. P923,124

295.) A book store purchased the best selling book at P200. At what price should this book be sold so that by giving a 20% discount, the profit is 30%.

- a. P200
- b. P300
- c. **P400**
- d. P500

296.) The selling price of a tv set is double that of its net cost. If the tv set is sold to a customer at a profit of 25% of the net cost, how much discount was given to the customer?

- a. 35.8%
- b. **37.5%**
- c. 34.5%
- d. 44.5%

297.) A manufacturing firm maintains one product assembly line to produce signal generators. Weekly demand for the generators is 35 units. The line operates for 7 hours per day, 5 days per week. What is the maximum production time per unit in hours required of the line to meet the demand?

- a. **1 hour**
- b. 2 hours
- c. 3 hours
- d. 4 hours

298.) Mahusay Corporation's gross margin is 55% of sales. Operating expenses such as sales and administration are 5% of sales. Mahusay is in 40% tax bracket. What percent of sales is their profit after taxes?

- a. 20%
- b. **30%**
- c. 40%
- d. 50%

299.) How much money must you invest in order to withdraw P5000 annually for 20 years if the interest rate is 12%?

- a. **P37,347.22**
- b. P23,325.23
- c. P38,243.29
- d. P27,124.09

300.) If interest is at rate of 10% compounded semi-annually, what sum must be invested at the end of each 6 months to accumulate a fund of P12,000 at the end of 8 years?

a. P507.24

c. P247.24

b. P451.24

d. P694.92

Differential Calculus

301.) Find two numbers whose sum is 20, if the product of one by the cube of another is to be the maximum.

a. 5 and 15

c. 4 and 16

b. 10 and 10

d. 8 and 12

302.) The sum of two numbers is 12. Find the minimum value of the sum of their cubes.

a. 432

c. 346

b. 644

d. 244

303.) A printed page must contain 60sq.m. of printed material. There are to be margins of 5cm. on either side and the margins of 3cm. on top and bottom. How long should the printed lines be in order to minimize the amount of paper used?

a. 10

c. 12

b. 18

d. 15

304.) A school sponsored trip will cost each student 15 pesos if not more than 150 students make the trip. However, the cost will be reduced by 5 centavos for each student in excess of 150. How many students should make the trip in order for the school to receive the largest group income?

a. 225

c. 200

b. 250

d. 195

305.) A rectangular box with square base and open at the top is to have a capacity of 16823cu.cm. Find the height of the box that requires minimum amount of material required.

a. 16.14cm

c. 12.14cm

b. 14.12cm

d. 10.36cm

306.) A closed cylindrical tank has a capacity of 576.56 cubic meters. Find the minimum surface area of the tank.

a. 383.40 cubic meters

c. 516.32 cubic meters

b. 412.60 cubic meters

d. 218.60 cubic meters

For Problems 307-309:

Two vertices of a rectangle are on the x axis. The other two vertices are on the lines whose equations are $y=2x$ and $3x+y=30$.

.

307.) If the area of the rectangle is maximum, find the value of y.

a. 8

c. 9

b. 7

d. 6

308.) Compute the maximum area of the rectangle.

a. 30 sq. units

c. 90 sq. units

b. 70 sq. units

d. 40 sq. units

309.) At what point from the intersection of the x and y axes will the farthest vertex of the rectangle be located along the x axis so that its area is max.

a. 8 units

c. 9 units

b. 7 units

d. 6 units

310.) A wall 2.245m high, is “x” meters away from a building. The shortest ladder that can reach the building with one end resting on the ground outside the wall is 6m. What is the value of x?

a. 2 m

c. 6 m

b. 4 m

d. 8 m

311.) With only 381.7 square meter of materials, a closed cylindrical tank of maximum volume. What is to be the height of the tank in m?

a. 9 m

c. 11 m

b. 7 m

d. 13 m

312.) If the hypotenuse of a right triangle is known, what is the ratio of the base and the altitude of the right triangle when its area is maximum?

a. 1:1

c. 1:3

b. 1:2

d. 1:4

313.) What is the maximum length of the perimeter if the hypotenuse of a right triangle is 5m long?

a. 12.08 m

c. 20.09 m

b. 15.09 m

d. 8.99 m

314.) An open top rectangular tank with square bases is to have a volume of 10 cubic meters. The material for its bottom is to cost 15 cents per square meter and that for the sides 6 cents per square meter. Find the most economical dimension for the tank.

a. 2 x 2 x 2.5

c. 2 x 3 x 2.5

b. 2 x 5 x 2.5

d. 2 x 4 x 2.5

315.) A trapezoidal gutter is to be made from a strip of metal 22m wide by bending up the sides. If the base is 14m, what width across the top gives the greatest carrying capacity?

a. 16

c. 10

b. 22

d. 27

316.) Divide the number 60 into two parts so that the product P of one part and the square of the other is the maximum. Find the smallest part.

a. 20

c. 10

b. 22

d. 27

317.) The edges of a rectangular box are to be reinforced with narrow metal strips. If the box will have a volume of 8 cubic meters, what would its dimension be to require the least total length of strips?

a. $2 \times 2 \times 2$

c. $3 \times 3 \times 3$

b. $4 \times 4 \times 4$

d. $2 \times 2 \times 4$

318.) A rectangular window surmounted by a right isosceles triangle has a perimeter equal to 54.14m. Find the height of the rectangular window so that the window will admit the most light.

a. 10

c. 12

b. 22

d. 27

319.) A normal widow is in the shape of a rectangle surrounded by a semi-circle. If the perimeter of the window is 71.416, what is the radius and the height of the rectangular portion so that it will yield a window admitting the most light.

a. 20

c. 12

b. 22

d. 27

320.) Find the radius of a right circular cone having a lateral area of 544.12 sq. m. to have a maximum value.

a. 10

c. 17

b. 20

d. 19

321.) A gutter with trapezoidal cross section is to be made from a long sheet of tin that is 15 cm. wide by turning up one third of its width on each side. What is the width across the top that will give a maximum capacity?

a. 10

c. 15

b. 20

d. 13

322.) A piece of plywood for a billboard has an area of 24 sq. feet. The margins at the top and bottom are 9 inches and at the sides are 6 in. Determine the size of the plywood for maximum dimensions of the painted area.

a. 4x6

c. 4x8

b. 3x4

d. 3x8

323.) A manufacturer estimates that the cost of production of "x" units of a certain item is $C=40x-0.02x^2-600$. How many units should be produced for minimum cost?

a. 1000 units

c. 10 units

b. 100 units

d. 10000 units

324.) If the sum of the two numbers is 4, find the minimum value of the sum of their cubes.

a. 16

c. 10

b. 18

d. 32

325.) If x units of a certain item are manufactured, each unit can be sold for $200 - 0.01x$ pesos. How many units can be manufactured for maximum revenue? What is the corresponding unit price?

a. 10000,P100

c. 20000,P200

b. 10500,P300

d. 15000,P400

326.) A certain spare parts has a selling price of P150 if they would sell 8000 units per month. If for every P1.00 increase in selling price, 80 units less will be sold out per month. If the production cost is P100 per unit, find the price per unit for maximum profit per month.

a. P175

c. P150

b. P250

d. P225

327.) The highway department is planning to build a picnic area for motorist along a major highway. It is to be rectangular with an area of 5000 sq. m. is to be fenced off on the three sides not adjacent to the highway. What is the least amount of fencing that will be needed to complete the job?

a. 200 m.

c. 400 m.

b. 300 m.

d. 500 m.

328.) A rectangular lot has an area of 1600 sq. m. find the least amount of fence that could be used to enclose the area.

a. 160 m.

c. 100 m.

b. 200 m.

d. 300 m.

329.) A student club on a college campus charges annual membership dues of P10, less 5 centavos for each member over 60. How many members would give the club the most revenue from annual dues?

a. 130 members

c. 240 members

b. 420 members

d. 650 members

330.) A monthly overhead of a manufacturer of a certain commodity is P6000 and the cost of the material is P1.0 per unit. If not more than 4500 units are manufactured per month, labor cost is P0.40 per unit, but for each unit over 4500, the manufacturer must pay P0.60 for labor per unit. The manufacturer can sell 4000 units per month at P7.0 per unit and estimates that monthly sales will rise by 100 for each P0.10 reduction in price. Find the number of units that should be produced each month for maximum profit.

a. 4700 units

c. 6800 units

b. 2600 units

d. 9900 units

331.) A company estimates that it can sell 1000 units per week if it sets the unit price at P3.00, but it's weekly sales will rise by 100 units for each P0.10 decrease in price. Find the number of units sold each week and its unit price per maximum revenue.

a. 2000 ; P2.00

c. 2500 ; P2.50

b. 1000 ; P3.00

d. 1500 ; P1.50

332.) In manufacturing and selling "x" units of a certain commodity, the selling price per unit is $P=5-0.002x$ and the production cost in pesos is $C=3+1.10x$. Determine the production level that will produce the maximum profit and what would this profit be?

a. 975, P1898.25

c. 865, P1670.50

b. 800, P1750.75

d. 785, P1920.60

333.) ABC company manufactures computer spare parts. With its present machines, it has an output of 500 units annually. With the addition of the new machines, the company could boost its yearly production to 750 units. If it produces "x" parts it can set a price of $P=200-0.15x$ pesos per unit and will have a total yearly cost of $C=6000+6x+0.003x^2$ in pesos. What production level maximizes total yearly profit?

a. 660 units

c. 560 units

b. 237 units

d. 243 units

334.) The hypotenuse of a right triangle is 20cm. What is the maximum possible area of the triangle in square centimeters?

a. 100

c. 120

b. 170

d. 160

335.) Sand is falling off a conveyor onto a conical pile at the rate of $15\text{cm}^3/\text{min}$. The base of the cone is approximately twice the altitude. Find the height of the pile if the height of the pile is changing at the rate 0.047746 cm/min .

a. 10cm

c. 8cm

b. 12cm

d. 6cm

336.) A machine is rolling a metal cylinder under pressure. The radius of the cylinder is decreasing at the rate of 0.05cm per second and the volume V is $128\pi\text{ cu.cm}$. At what rate is the length "h" changing when the radius is 2.5 cm .

a. 0.8192 cm/sec

c. 0.6178 cm/sec

b. 0.7652 cm/sec

d. 0.5214 cm/sec

337.) Two sides of a triangle are 15cm and 20cm long respectively. How fast is the third side increasing if the angle between the given sides is 60° and is increasing at the rate of $2^\circ/\text{sec}$.

a. 0.05 cm/sec

c. 1.20 cm/sec

b. 2.70 cm/sec

d. 3.60 cm/sec

338.) Two sides of a triangle are 30cm and 40cm respectively. How fast is the area of the triangle increasing if the angle between the given sides is 60° and is increasing at the rate of $4^\circ/\text{sec}$.

a. $20.94\text{ m}^2/\text{sec}$

c. $14.68\text{ m}^2/\text{sec}$

b. $29.34\text{ m}^2/\text{sec}$

d. $24.58\text{ m}^2/\text{sec}$

339.) A man 6ft tall is walking toward a building at the rate of 5ft/sec. If there is a light on the ground 50ft from the building, how fast is the man's shadow on the building growing shorter when he is 30ft from the building?

a. -3.75 fps

c. -5.37 fps

b. -7.35 fps

d. -4.86 fps

340.) The volume of the sphere is increasing at the rate of $6\text{cm}^3/\text{hr}$. At what rate is its surface area increasing when the radius is 50cm(in cm^3/hr)

a. $20.94\text{ m}^2/\text{sec}$

c. $14.68\text{ m}^2/\text{sec}$

b. $29.34\text{ m}^2/\text{sec}$

d. $24.58\text{ m}^2/\text{sec}$

341.) A particle moves in a plane according to the parametric equations of motions: $x=t^2$, $y=t^3$. Find the magnitude of the acceleration when the $t=0.6667$.

a. 6.12

c. 4.90

b. 5.10

d. 4.47

342.) The acceleration of the particle is given by $a=2+12t$ in m/s^2 where t is the time in minutes. If the velocity of this particle is 11m/s after 1min, find the velocity after 2mins.

a. 31 m/sec

c. 37 m/sec

b. 45 m/sec

d. 26 m/sec

343.) A particle moves along a path whose parametric equations are $x=t^3$ and $y=2t^2$. What is the acceleration when $t=3\text{sec}$?

a. 15.93 m/sec^2

c. 23.36 m/sec^2

b. 18.44 m/sec^2

d. 10.59 m/sec^2

344.) A vehicle moves along a trajectory having coordinates given as $x=t^3$ and $y=1-t^2$. The acceleration of the vehicle at any point of the trajectory is a vector, having magnitude and direction. Find the acceleration when $t=2$.

a. 13.20

c. 15.32

b. 12.17

d. 12.45

345.) $Y = x^3 - 3x$. Find the maximum value of y .

a. 2

c. 0

b. 1

d. 3

346.) Find the radius of curvature of the curve $y=2x^3+3x^2$ at (1,5).

a. 90

c. 95

b. 97

d. 84

347.) Compute the radius of curvature of the curve $x=2y^3-3y^2$ at (4, 2).

a. -99.38

c. -95.11

b.- 97.15

d. -84.62

348.) Find the radius of curvature of a parabola $y^2-4x=0$ at point (4, 4).

a. 25.78

c. 20.33

b. 22.36

d. 15.42

349.) Find the radius of curvature of the curve $x=y^3$ at point (1, 1).

a. -1.76

c. 2.19

b. -1.24

d. 2.89

350.) Find the point of inflection of the curve $y=x^3-3x^2+6$.

a. (1, 4)

c. (0, 2)

b. (1,3)

d. (2, 1)

Integral Calculus

351.) Find the total length of the curve $r=4(1-\sin\theta)$ from $\theta=90^\circ$ to $\theta=270^\circ$ and also the total perimeter of the curve.

a. 18, 36

c. 12, 24

b. 16, 32

d. 15, 30

352.) Find the length of the curve $r=4\sin \theta$ from $\theta=0^\circ$ to $\theta=90^\circ$ and also the total length of curve.

a. 2π ; 4π

c. π ; 2π

b. 3π ; 6π

d. 4π ; 8π

353.) Find the length of the curve $r = a (1-\cos\theta)$ from $\theta=0^\circ$ to $\theta=\pi$ and also the total length of the curve.

a. $4a$; $8a$

c. $3a$; $6a$

b. $2a$; $4a$

d. $5a$; $9a$

354.) Find the total length of the curve $r = a \cos\theta$.

a. $2\pi a$

c. $1.5\pi a$

b. πa

d. $0.67\pi a$

355.) Find the length of the curve having a parametric equations of $x = a \cos^3 \theta$, $y = a \sin^2 \theta$ from $\theta = 0^\circ$ to $\theta = 2\pi$.

a. $5a$

c. $7a$

b. $6a$

d. $8a$

356.) Find the centroid of the area bounded by the curve $y = 4 - x^2$, the line $x = 1$ and the coordinate axes.

a. $(0.48, 1.85)$

c. $(0.24, 1.57)$

b. $(1.22, 0.46)$

d. $(2.16, 0.53)$

357.) Find the centroid of the area under $y = 4 - x^2$ in the first quadrant.

a. $(0.75, 1.6)$

c. $(0.74, 1.97)$

b. $(1.6, 0.95)$

d. $(3.16, 2.53)$

358.) Find the centroid of the area in first quadrant bounded by the curve $y^2 = 4ax$ and the latus rectum.

a. $(0.6a, 0.75a)$

c. $(0.94a, 2.97a)$

b. $(1.23a, 0.95a)$

d. $(1.16a, 0.53a)$

359.) A triangular section has coordinates of A(2,2), B(11,2), and C(5,8). Find the coordinates of the centroid of the triangular section.

a. $(7, 4)$

c. $(8, 4)$

b. $(6, 4)$

d. $(9, 4)$

360.) The following cross section has the following given coordinates. Compute for the centroid of the given cross section. A(2,2), B(5,8), C(7,2), D(2,0), and E(7,0).

a. $(4.6, 3.4)$

c. $(5.2, 3.8)$

b. (4.8, 2.9)

d. (5.3, 4.1)

361.) Sections ABCD is a quadrilateral having the given coordinates A(2,3), B(8,9), C(11,3), and D(11,0). Compute for the coordinates of the centroid of the quadrilateral.

a. (7.33, 4)

c. (5.32, 3)

b. (6.23, 4)

d. (8.21, 3)

362.) A cross section consists of a triangle and a semi circle with AC as its diameter. If the coordinates of A(2,6), B(11,9), and C(14,6). Compute for the coordinates of the centroid of the cross section.

a. (4.6, 3.4)

c. (5.2, 3.8)

b. (4.8, 2.9)

d. (5.3, 4.1)

363.) A 5m x 5cm is cut from a corner of 20cm x 30cm cardboard. Find the centroid from the longest side.

a. 10.33m

c. 10.99m

b. 11.42m

d. 12.42m

364.) Locate the centroid of the area bounded by the parabola $y^2=4x$, the line $y=4$ and the y-axis.

a. (1.2, 3)

c. (0.6, 3)

b. (0.4, 3)

d. (1.33, 3)

365.) Find the centroid of the area bounded by the curve $x^2=-(y-4)$, the x-axis and the y-axis on the first quadrant.

a. (0.75, 1.6)

c. (1.75, 1.2)

b. (1.25, 1.4)

d. (0.25, 1.8)

366.) Locate the centroid of the area bounded by the curve $y^2 = -1.5(x-6)$, the x-axis and the y-axis on the first quadrant.

a. (2.4, 1.13)

c. (2.8, 0.63)

b. (2.6, 0.88)

d. (2.2, 1.38)

367.) Locate the centroid of the area bounded by the curve $5y^2 = 16x$ and $y^2 = 8x - 24$ on the first quadrant.

a. (2.20, 1.51)

c. (2.78, 1.39)

b. (1.50, 0.25)

d. (1.64, 0.26)

368.) Locate the centroid of the area bounded by the parabolas $x^2 = 8y$ and $x^2 = 16(y-2)$ in the first quadrant.

a. (3.25, 1.2)

c. (2.67, 2.0)

b. (2.12, 1.6)

d. (2.00, 2.8)

369.) Given the area in the first quadrant bounded by $x^2 = 8y$, the line $y-2=0$ and the y-axis. What is the volume generated when revolved about the line $y-2=0$?

a. $53.31m^3$

c. $26.81m^3$

b. $45.87m^3$

d. $33.98m^3$

370.) Given the area in the first quadrant bounded by $x^2 = 8y$, the line $x=4$ and the x-axis. What is the volume generated by revolving this area about the y-axis?

a. $78.987m^3$

c. $61.253m^3$

b. $50.265m^3$

d. $82.285m^3$

371.) Given the area in the first quadrant bounded by $x^2 = 8y$, the line $y-2=0$ and the y-axis. What is the volume generated when this area is revolved about the x-axis.

a. 20.32m^3

c. 40.21m^3

b. 34.45m^3

d. 45.56m^3

372.) Find the volume formed by revolving the hyperbola $xy=6$ from $x=2$ to $x=4$ about the x -axis.

a. 28.27m^3

c. 23.23m^3

b. 25.53m^3

d. 30.43m^3

373.) The region in the first quadrant under the curve $y=\sinh x$ from $x=0$ to $x=1$ is revolved about the x -axis. Compute the volume of solid generated.

a. 1.278m^3

c. 3.156m^3

b. 2.123m^3

d. 1.849m^3

374.) A square hole of side 2cm is chiseled perpendicular to the side of a cylindrical post of radius 2cm. If the axis of the hole is going to be along the diameter of the circular section of the post, find the volume cutoff.

a. 15.3m^3

c. 43.7m^3

b. 23.8m^3

d. 16.4m^3

375.) Find the volume common to the cylinders $x^2+y^2=9$ and $y^2+z^2=9$.

a. 241m^3

c. 424m^3

b. 533m^3

d. 144m^3

376.) Given is the area in the first quadrant bounded by $x^2=8y$, the line, the line $x=4$ and the x -axis. What is the volume generated by revolving this area about the y -axis.

a. 50.26m^3

c. 53.26m^3

b. 52.26m^3

d. 51.26m^3

377.) The area bounded by the curve $y^2=12x$ and the line $x=3$ is revolved about the line $x=3$. What is the volume generated?

a. 185

c. 181

b. 187

d. 183

378.) The area in the second quadrant of the circle $x^2+y^2=36$ is revolved about the line $y+10=0$. What is the volume generated?

a. 2128.63

c. 2233.43

b. 2228.83

d. 2208.53

379.) The area enclosed by the ellipse $0.11x^2+0.25y^2=1$ is revolved about the line $x=3$, what is the volume generated?

a. 370.3

c. 355.3

b. 360.1

d. 365.1

380.) Find the volume of the solid formed if we rotate the ellipse $0.11x^2+0.25y^2=1$ about the line $4x+3y=20$.

a. $48\pi^2m^3$

c. $40\pi^2m^3$

b. $45\pi^2m^3$

d. $53\pi^2m^3$

381.) The area on the first and second quadrant of the circle $x^2+y^2=36$ is revolved about the line $x=6$. What is the volume generated?

a. 2131.83

c. 2421.36

b. 2242.46

d. 2342.38

382.) The area on the first quadrant of the circle $x^2+y^2=25$ is revolved about the line $x=5$. What is the volume generated?

a. 355.31

c. 368.33

b. 365.44

d. 370.32

383.) The area of the second and third quadrant of the circle $x^2+y^2=36$ is revolved about the line $x=4$. What is the volume generated?

a. 2320.30

c. 2327.25

b. 2545.34

d. 2520.40

384.) The area on the first quadrant of the circle $x^2+y^2=36$ is revolved about the line $y+10=0$. What is the volume generated?

a. 3924.60

c. 2593.45

b. 2229.54

d. 2696.50

385.) The area enclosed by the ellipse $0.0625x^2+0.1111y^2=1$ on the first and 2nd quadrant, is revolved about the x-axis. What is the volume generated?

a. 151.40

c. 156.30

b. 155.39

d. 150.41

386.) The area enclosed by the curve $9x^2+16y^2=144$ on the first quadrant, is revolved about the y-axis. What is the volume generated?

a. 100.67

c. 98.60

b. 200.98

d. 54.80

387.) Find the volume of an ellipsoid having the equation $0.04x^2+0.0625y^2+0.25z^2=1$.

a. 167.55

c. 171.30

b. 178.40

d. 210.20

388.) Find the volume of a spheroid having equation $0.04x^2 + 0.111y^2 + 0.111z^2 = 1$.

a. 178.90

c. 188.50

b. 184.45

d. 213.45

389.) The region in the first quadrant which is bounded by the curve $y^2 = 4x$, and the lines $x=4$ and $y=0$, is revolved about the x -axis. Locate the centroid of the resulting solid revolution.

a. 2.667

c. 1.111

b. 2.333

d. 1.667

390.) The region in the first quadrant, which is bounded by the curve $x^2 = 4y$, the line $x=4$, is revolved about the line $x=4$. Locate the centroid of the resulting solid revolution.

a. 0.8

c. 1.0

b. 0.5

d. 0.6

391.) The area bounded by the curve $x^3 = y$, the line $y=8$ and the y -axis, is to be revolved about the y -axis. Determine the centroid of the volume generated.

a. 5

c. 4

b. 6

d. 7

392.) The area bounded by the curve $y = x^3$ and the x -axis. Determine the centroid of the volume generated.

a. 2.25

c. 1.25

b. 1.75

d. 0.75

393.) Find the moment of inertia of the area bounded by the curve $x^2=4y$, the line $y=1$ and the y-axis on the first quadrant with respect to x-axis.

- a. 1.2 **c. 0.57**
- b. 3.5 d. 1.14

394.) Find the moment of inertia of the area bounded by the curve $x^2=4y$, the line $y=1$ and the y-axis on the first axis with respect to y axis.

- a. 6.33 c. 0.87
- b. 1.07** d. 0.94

395.) Find the moment of inertia of the area bounded by the curve $x^2=8y$, the line $x=4$, and the x-axis on the first quadrant with respect to x-axis.

- a. 1.52** c. 1.98
- b. 2.61 d. 2.36

396.) Find the moment of inertia of the area bounded by the curve $x^2=8y$, the line $x=4$, and the x-axis on the first quadrant with respect to y-axis.

- a. 25.6** c. 31.6
- b. 21.8 d. 36.4

397.) Find the moment of inertia of the area bounded by the curve $y^2=4x$, the line $x=1$, and the x-axis on the first quadrant with respect to x-axis.

- a. 1.067** c. 1.861
- b. 1.142 d. 1.232

398.) Find the moment of inertia of the area bounded by the curve $y^2=4x$, the line $x=1$, and the x-axis on the first quadrant with respect to y-axis.

- a. 0.571** c. 0.436

b. 0.682

d. 0.716

399.) Find the moment of inertia of the area bounded by the curve $y^2=4x$, the line $y=2$, and the y-axis on the first quadrant with respect to y-axis.

a. 0.095

c. 0.088

b. 0.064

d. 0.076

400.) Find the moment of inertia with respect to x-axis of the area bounded by the parabola $y^2=4x$, the line $x=1$.

a. 2.35

c. 2.13

b. 2.68

d. 2.56