Tanta University — College Of Commerce
Business Mathematics — Mid-Term Exam — 2nd year (BIS)
November 2018 — Time allowed: One hour

Answer the following questions:

Question 1: Answer the Following Questions Choosing the Correct Answer:

[1] *A loan of \$7300 at 12% interest. The difference between ordinary interest (I) and exact interest (I_e) at the end of 90 days* is
a. \$1 b. \$2 c. \$3 d. none of these and the correct answer is .....

[2] *In the above question [1], if the loan is due in 120 days; at the end of April 2010, the date of borrowing is*
a. 1/1/2010 b. 30/12/2009 c. 31/1/2010 d. 31/12/2009

[3] *In question [1], if the date of borrowing is January 17, 2012 and the maturity date is May11, 2012, the borrowing term is*
a. 115 days b. 114 days c. 113 days d. none of these and the correct answer is...

[4] *In question [1], if the difference between the ordinary interest (I) and the exact interest (Ie) at the end of 180 days is \$6, and the ordinary interest is \$438, the exact interest* is
a. $(I - I_e) \times 72$ b. $I \times \frac{72}{73}$ c. $I - (I - Ie)$ d. all

[5] *At what simple interest rate will a sum of money treble itself in 10 years?*
a. 20% b. 15% c. 10% d. none of these and the correct answer is...

[6] *Payment of \$1567.50 was made for discharging a four- month loan of \$1500. The interest rate was*
a.12% b. 13% c. 14% d. none of these and the correct answer is.....

Question 2: *A debt of \$1000 is due on September24. The payment plans are as follows: \$100 due on Octoper25, \$150 due on December4, \$250 due on November 4, assume that the interest rate is16%; that is, $i \neq 0$, what is the equated date on which a single payment of \$500 discharges the balance? What will the equated date be if there is no interest ($i = 0$)?*

WITH MY BEST WISHES *DR. SAYED METWALY*

Tanta University — College Of Commerce

Business Mathematics — Final – Exam. — 2nd year (BIS)

January 2019 — Time allowed: 3 hours

(1)

Answer what is required in each of the following questions:

FIRST QUESTION:

(1) *Ahmed owes Mostafa (a) $1000, which is four months overdue; (b) $2000, which is three months overdue; and (c) $ 1500, which is due today. Ahmed wishes now to sign two non- interest- bearing notes of equal amounts with one note due in one month and the other due in two months. The 6% interest rate is used throughout. What should be the face value for each note if the comparison date is now?*

(2) *Stevenson received sum of money in cash from a bank on April 1 and agreed to pay $3600 on August 29 for the loan. If the simple interest rate is* $\frac{12}{115}$, *find the proceeds in two different ways.*

(3) *Proof that:* $S = P\,(1 + i)^{n}$

(4) *Find the compound interest and the compound amount on $ 10000 at 6% compounded semiannually for three years and two months.*

(5) *How much time is needed for $400 to yield $136 interest if the interest rate is 10% compounded semiannually?*

SECOND QUESTION:

(1) *Safa borrowed some money from Julian as follows: $50 due in one year, $200 due in three years, and $due in five years. If money is worth 6% compounded monthly, when can Safa discharge all her debts by a single payment of $550? What nominal rate compounded continuously that is equivalent to the rate stipulated on the problem?*

(2) *On July 1, 2015a man deposited $150 1n a savings and loan association that pays 8% compounded quarterly. The man continuous to deposit $150 every quarter thereafter. (A) How much will be in his account on July 1, 2015, immediately before*

the deposit on this date is made? (B) What will be the account balance after three years from the last payment?

(3) *Find the amount and the present value of an annuity of $150 payable at the end of every three* ***months*** *for 30 payments. The first payment is due at the end of seven years. The interest rate is 11%compounded quarterly.*

(4) *You deposit 1000 today and another 2000 in five years into a fund that pays simple discounting at 5% per year.*

Your friend makes the same deposits into another fund, but at time ***n*** *and* ***2n****, respectively. This fund credits interest at an annual effective rate of 10%.*

At the end of 10 years, the accumulated value of your deposits is exactly the same as the accumulated value of your friend's deposits. ***Calculate n.***

With my best wishes

dr. Sayed Metwaly

Tanta University – Faculty of Commerce – First Semester- 2019/2020
Second Level -BIS *Time allowed: 1-hour* *Total marks: 30*
Midterm Exam: Mathematics of Finance

Select the suitable answer in your electronic answer sheet with details in your exam booklet (30 Marks)

1- The *exact time* from June 24, 1998 to September 27, 1998:

A- 93 days B- 94 days C- 95 days D- None of these.

2- Suppose someone invests $200 today for 3 years and receives 12% simple interest on his investment. How much would the investor have after 3 years?

A- $72 B- $272 C- $200 D- None of these.

3- At what interest rate will $450 yield $236.25 in five years?

A- 11% B- 10.5% C- 10% D- None of these

4- What the amount on $700 for 125 days at 10%? (Use the Banker's Rule)

A- $24.31 B- $739 C- $730 D- $724.31

5- Sam borrowed $5000 from his friend at simple interest of 6%. He returned his friend $5050 After how much time did Sam return the money?

A- 1.5 months B- 2 months C- 2.5 months D- 3.5 months.

6- A woman has part of her money invested at 10% and the remainder at 12%. Her annual income from the investment is $480. If she had received 1% less interest on both of her two investments, her income would have been $438 annually. How much did she invest at each interest rate?

A- 1200 & 3000 B- 1000 & 2000 C- 1500 & 3000 D- 1000 & 2500

7- A woman borrows $2000 and agrees to pay $500 on the principal plus the simple interest 10% on the principal outstanding at the end of each six-month period. Find the total amount that must be paid to discharge the debt.

A- $2500 B- $3000 C- $2250 D- $2850

8- A woman owes $4000 she and her creditor agree that she can pay $2000 now and the balance in 6 months. Find the payment in 6 months if the settlement is based on an interest rate of 16% and the *focal date is 6 months hence.*

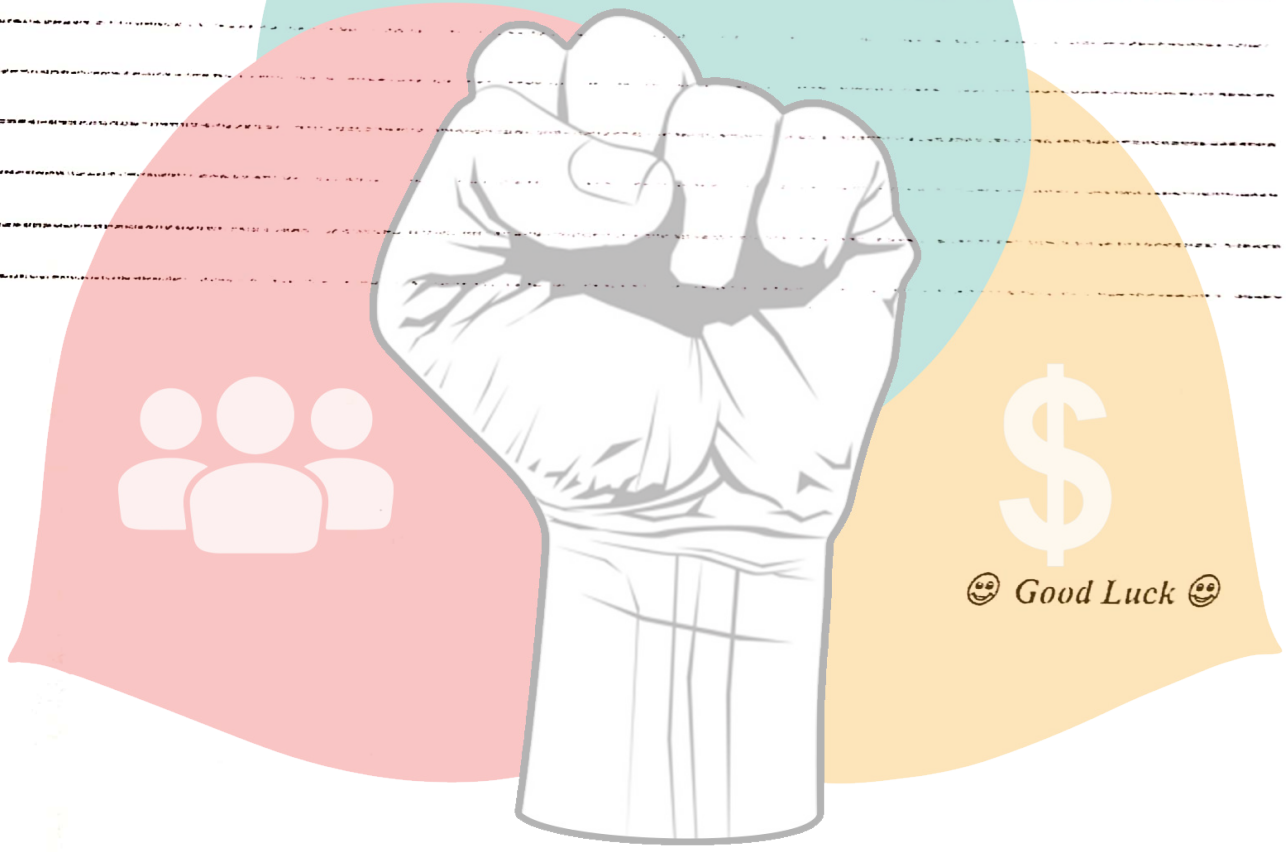
A- $2101.33 B- $2392.16 C- $2500.22 D- $2160.00

9- A man borrowed $800 from a bank that charged 15% interest in advance. He received $770 from the loan. When will the loan be due?

A- ¼ year B- 90 days C- Both A & B D- None of these

10- On August 5, 1998, Alice discounts $800 note with interest rate 12%, Maturity date is August 30, 1998 and the date of the note is July 1, 1998. A discount rate of 12.5%. What are the proceeds?

A- $807 B- $801 C- $808.92 D- $810



Good Luck

2315 الفرقة الثانية 2020

Tanta University
Faculty of Commerce
BIS Program
First Semester 2019/2020

MATHEMATICS OF FINANCE
FINAL EXAM

Date: 14/1/ 2020
Duration: 3 hours
2nd Level
Total marks: 50 marks

Select the suitable answer in your electronic answer sheet with details in your exam booklet (50 Marks)

1- The exact time from 14/11/1996 to 24/4/1997 equal:
A- 161 days B- 160 days C- 159 days D- None of these.

2- Suppose someone invests $500 today for 50 years and receives 10% simple interest on his investment. How much would the investor have after 50 years?
A- $4000 B- $3000 C- $3500 D- None of these.

3- At what simple interest rate will a sum of money double itself in 12 years?
A- 8.11% B- 8.22% C- 8.33% D- None of these

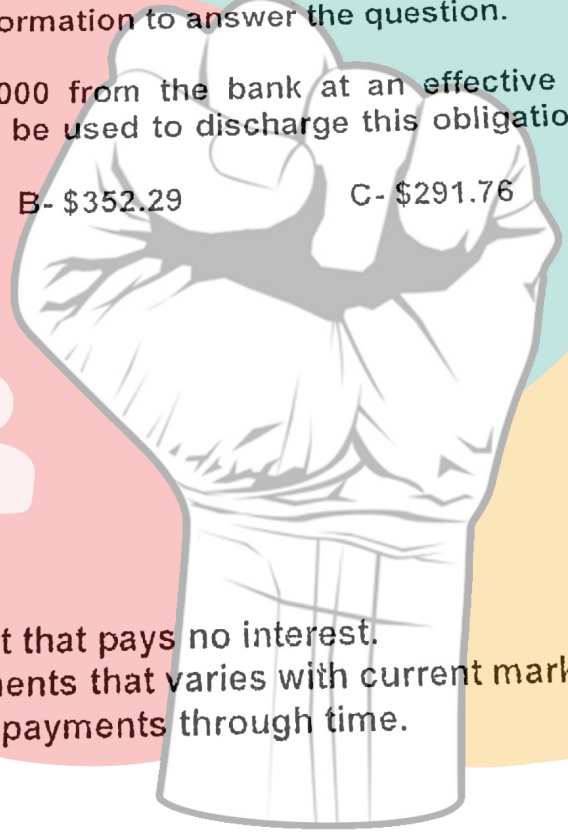
4- A person borrowed $2000 on July 1, 1995. Partial payments were made as follows: $500 on August 30, 600 on September 29, 1995, he wishes to settle his obligation. If the interest rate charged is 6%, what is the unpaid balance on October 29, 1995 by the Merchants' rule?
A- $603 B- $932 C- $1108 D- $81

5- A person received $3450 in cash from a bank on April 1 and agreed to pay $3600.9375 on August 29 for the loan, what is the bank discount?
A- 9% B- 10.5% C- 11% D- 12%

6- Suppose someone invests $1000 today for 50 years and receives 10% annual compound interest. How much would the investor have after 50 years?
A- $124,643.24 B- $117,390.85 C- 141,736.89 D- $107,456.76

7- Suppose you could borrow using either a credit card that charges 1% per month or a bank loan with 12% nominal interest rate that is compounded monthly. Which should you choose?
A- The credit card loan because it is slightly less expensive
B- The bank loan because it is slightly less expensive
C- Both the credit card and the bank loan are equally expensive.
D- You need more information to answer the question.

8- You borrowed $1000 from the bank at an effective rate 10%, four-equal annual payments will be used to discharge this obligation. What is the size of each payment?
A- $262.48 B- $352.29 C- $291.76 D- $315.47



9- An annuity
A- is a debt instrument that pays no interest.
B- is a stream of payments that varies with current market interest.
C- is a series of equal payments through time.
D- has no value.

10- Suppose you need $7500 in 4 years for the down payment on a new car. If you can earn 14% compounded monthly, how much do you need to invest today?

A- $4821.927 B- 4297.98 C- 4921.92 D- None of these.

11- You want to begin saving for your son's college education and you estimate that he will need $10,000 after 4 years. Equal deposits are made at the end of each 6 months in saving account paying 6% converted semiannually. what the size of each deposit?

A- $1000 B- $1124.56 C- $1141.43 D- None of these

12- Suppose there is an investment that will double your money in 10 years. You have $40,000 to invest. What is the implied compound rate of interest?

A- 7.177% B- 10% C. 11.178% D- None of these.

13- You want to buy a new house that worth $1,200,000. If you can invest at 9% compound interest per year and you currently have $800,000, how long will it be before you have enough money to buy it if the price of the house is fixed?

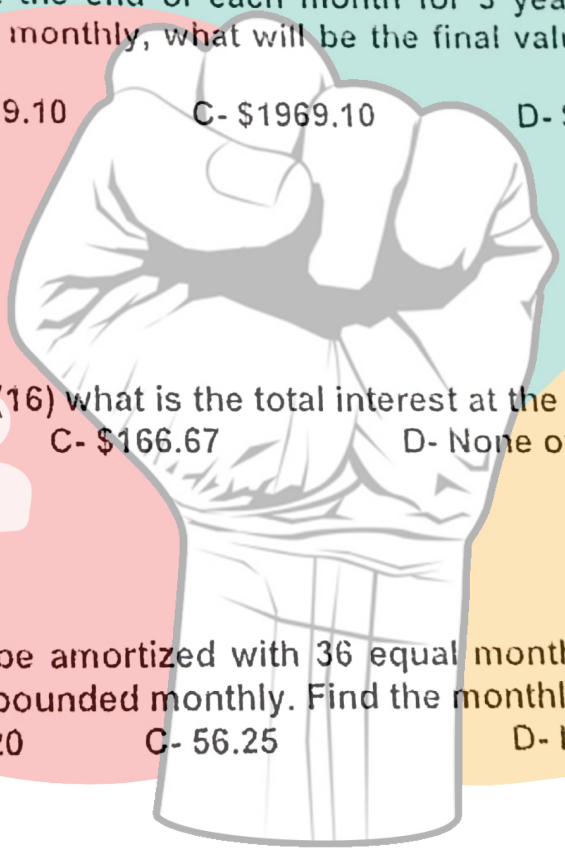
A- 4.719 B- 4.705 C- 4.080 D- None of these.

14- If $1000 will accumulate to $5192.78 in 10.5 years, what is the nominal interest rate compounded quarterly?

A- 16% B- 4% C-15.5% D- None of these

15- John borrowed some money from Mary as follows: (a $500 due in 2 years, (b) $1000 with interest at 16% compounded quarterly due in 3 years. If money is worth 18% computed semiannually, what single payment 7 years hence will equivalent to the two original obligations?

A- $ 4373.83
B- $1601.03
C- $ 1183.68
D- None of these



16- If $20 is deposited at the end of each month for 3 years in a bank that charges 6% compounded monthly, what will be the final value at the end of 3 years?

A- $2696.10 B- $2969.10 C- $1969.10 D- $786.72

17- In previous Question (16) what is the total interest at the end of 5 years?

A- $720 B- $66.72 C- $166.67 D- None of these

18- A $15000 loan is to be amortized with 36 equal monthly payments. If the interest rate is 4.5% compounded monthly. Find the monthly payments?

A- $389.95 B- $446.20 C- 56.25 D- None of these

19- In previous Question (18) Portion of Principal Reduced K1=

A- $389.95 B- $446.20 C- 56.25 D- None of these

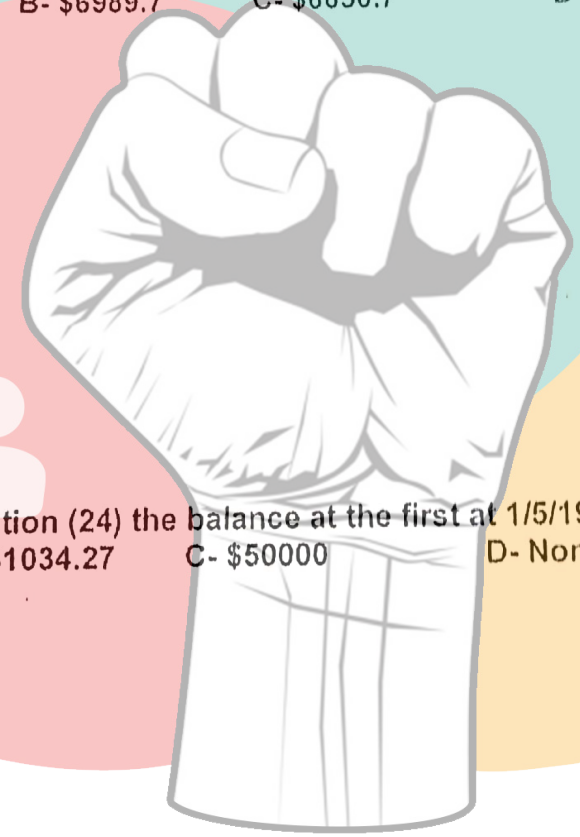
20- In previous Question (18) Portion of Principal Reduced K5 =
A- $389.95 B- $395.83 C- 56.25 D- None of these

21- In previous Question (18) Portion of Interest I4 =
A- $53.32 B- $51.85 C- $50.37 D- None of these

22- In previous Question (18) Find the outstanding principal just after the 5th payment?
A- $13825.76 B- $13431.41 C- $13035.44 D- None of these.

23- The present value of the deferred ordinary annuity is the same as the present value of the ordinary annuity.
A- True B- False

24- A firm expects to need $50,000 on May 1, 1994 to replace some machine tools. To provide this amount the firm makes equal annual deposits into a fund at the end of each year that is invested at 7% converted annually if the first deposit is made on May 1, 1989 what will be the size of each deposit?
A- $5366.82 B- $6989.7 C- $6650.7 D- None of these



25- In previous Question (24) the balance at the first at 1/5/1994 is:
A- $40196.46 B- $31034.27 C- $50000 D- None of these

Good Luck